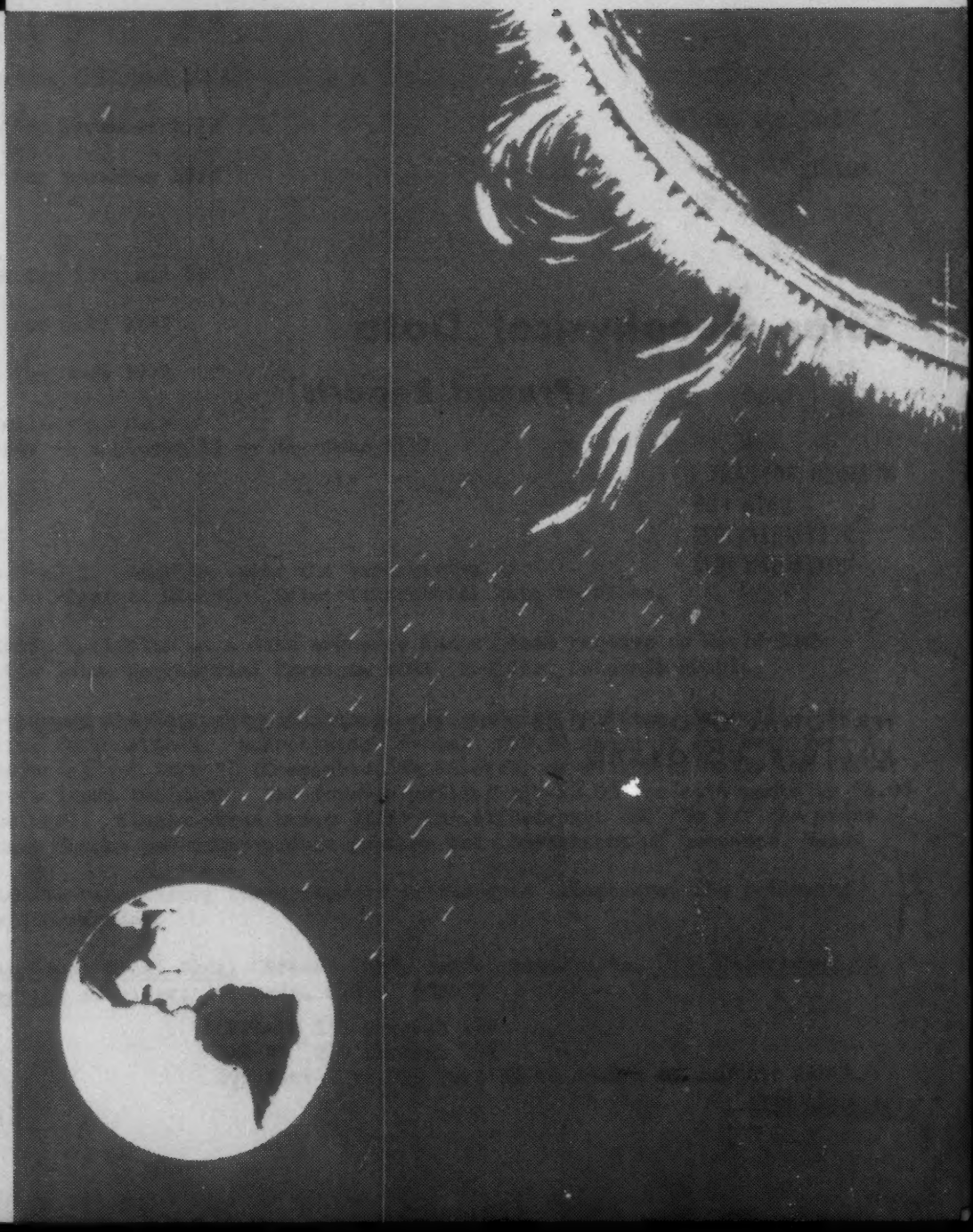
A UNITED STATES DEPARTMENT OF COMMERCE PUBLICATION

SOLAR-GEOPHYSICAL DATA
(prompt reports)

U. S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Environmental Data Service

JANUARY 1973



NUMBER 341-PART I
DATA FOR
DECEMBER 1972
NOVEMBER 1972

U.S. DEPARTMENT OF COMMERCE
Peter G. Peterson, Secretary
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
Robert M. White. Administrator
ENVIRONMENTAL DATA SERVICE
Thomas S. Austin, Director

Solar-Geophysical Data

(Prompt Reports)

NUMBER 341-PART I
DATA FOR
DECEMBER 1972
NOVEMBER 1972

NATIONAL GEOPHYSICAL AND SOLAR-TERRESTRIAL DATA CENTER
BOULDER, COLORADO

JANUARY 1973

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299 Part I or 299 Part II to number of current issue.

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For explanations of the data contained herein see "Descriptive Text" published as supplement to February 1972 "Solar-Geophysical Data" (Number 330).

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

DECEMBER 1972

DEC. 1972	TIME OF ISSUE UT	ADVANCE GEOPHYSICAL ALERT	WORLDWIDE GEOPHYSICAL ALERT	
			NO.	TYPE INCLUDING FLARE ACTIVITY EXPECTED
01	0400			S16W36 ERUPTIVE; THREE QUIET; SOLNIL
02	0400			FOUR QUIET; SOLNIL
03	0400			THREE QUIET; SOLNIL
04	0400			THREE QUIET; SOLNIL
05	0400			THREE QUIET; SOLNIL
06	0400			TWO QUIET; SOLNIL
07	0400			TWO QUIET; SOLNIL
08	0400			N12E51 ACTIVE; TWO QUIET; SOLNIL
	2330	BOULDER TENFLARE GREATER THAN 158 FLUX UNITS 08/2254Z 15 MINUTE DURATION		
	2353	TOYOKAWA TENFLARE 330 UNITS 08/2256Z 24 MIN		
09	0400		09463	SOLALERT; N12E49 ACTIVE
	1636	CANARY ISLANDS MAJOR FLARE 09/1600Z N12E28 IMP 2B TENCM BURST 100 FLUX UNITS DURATION 20 MINUTES		
	1636	BOULDER SOFLARE 2B N08E30 09/1601Z IN PROGRESS TENFLARE 100 FLUX UNITS 18 MIN DURATION		
10	0400		10464	SOLALERT; N11E27 ACTIVE; ONE QUIET
11	0400		11465	SOLALERT; N12E20 ACTIVE; TWO QUIET
12	0400		12466	SOLALERT; N11E05, S18E51 ERUPTIVE; TWO QUIET
13	0400		13467	SOLALERT; N11W14 ACTIVE; S18E30 ERUPTIVE; THREE QUIET
14	0400		14468	MAGSTORM EXISTS MINOR RECURRENT
			14469	SOLALERT PIANO; N11W32, S19E13 ERUPTIVE; THREE QUIET
15	0400		15470	MAGALERT 16/19 MINOR RECURRENCE; N13W50, S19E04 ERUPTIVE; TWO QUIET; SOLNIL
16	0400		16471	MAGALERT 16/19 MINOR DISTURBANCE; FIVE QUIET
	0503	CARNARVON TENFLARE 292 FLUX UNITS 16/0339Z IN PROGRESS AT 16/0400Z		
	0500	TOYOKAWA TENFLARE 450 UNITS 16/0340Z 55 MIN WEST LIMB		
17	0400		17472	MAGALERT 17/19 MINOR DISTURBANCE; S20W12, S06E31 ERUPTIVE; FIVE QUIET
18	0400			SIX QUIET; SOLNIL
19	0400			S07E05 ERUPTIVE; THREE QUIET; SOLNIL
20	0400			FOUR QUIET; SOLNIL
21	0400			FIVE QUIET; SOLNIL
22	0400			N12E25 ERUPTIVE; SIX QUIET; SOLNIL
23	0400			N13E13 ERUPTIVE; THREE QUIET; SOLNIL
24	0400			FOUR QUIET; SOLNIL
25	0400			N11W14 ERUPTIVE; TWO QUIET; SOLNIL
26	0400			THREE QUIET; SOLNIL
27	0400			THREE QUIET; SOLNIL
28	0400			TWO QUIET; SOLNIL
29	0400			THREE QUIET; SOLNIL
30	0400			TWO QUIET; SOLNIL
31	0400			N08E72 ERUPTIVE; ONE QUIET; SOLNIL

RELATIVE SUNSPOT NUMBERS

ZURICH, R_Z

1972 PROVISIONAL

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	49	53	74	40	17	78	68	93	121	78	70	35
2	52	52	89	46	39	96	74	81	91	65	67	23
3	55	39	96	43	32	102	85	85	69	73	49	20
4	50	46	84	38	27	116	91	80	68	73	26	20
5	54	49	72	32	49	132	104	93	77	67	13	18
6	57	40	64	51	68	103	92	85	78	57	16	16
7	59	49	74	76	79	95	97	65	73	54	8	24
8	58	59	84	75	73	87	86	56	65	52	7	33
9	39	58	81	74	99	76	75	59	57	30	14	42
10	25	57	81	88	91	68	64	44	43	24	12	51
11	22	57	68	75	79	63	62	25	43	26	30	59
12	25	62	80	80	92	48	77	50	33	16	26	60
13	29	73	91	78	103	43	89	55	31	14	25	63
14	45	89	104	65	130	60	86	37	35	8	27	60
15	46	108	114	67	113	88	61	39	42	14	18	64
16	47	137	104	60	125	98	60	57	53	34	25	66
17	50	137	114	55	140	101	59	62	44	30	32	76
18	60	146	110	59	133	86	55	52	35	28	21	51
19	61	162	112	62	127	83	73	54	30	44	35	38
20	69	159	113	65	105	92	59	48	44	45	54	54
21	78	156	110	85	89	96	70	60	60	53	58	70
22	89	167	113	85	77	87	72	85	69	63	62	57
23	107	141	119	83	59	84	68	71	59	66	68	60
24	135	120	119	82	58	79	64	82	71	81	65	43
25	112	93	112	88	56	77	62	64	82	91	54	39
26	92	88	55	88	55	73	83	79	78	95	52	32
27	96	79	34	62	41	66	82	89	77	103	51	31
28	108	88	25	66	44	78	86	113	67	84	53	26
29	115	91	29	38	58	73	106	147	70	65	40	20
30	78		42	22	79	73	112	141	75	90	37	29
31	56		37		85		115	137		84		37
MEAN	64.6	91.6	84.0	64.3	78.1	83.4	78.6	73.8	61.3	54.8	37.6	42.5

1971 yearly mean = 66.6

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO

FLUX ADJUSTED TO 1 A.U., S_a

1972

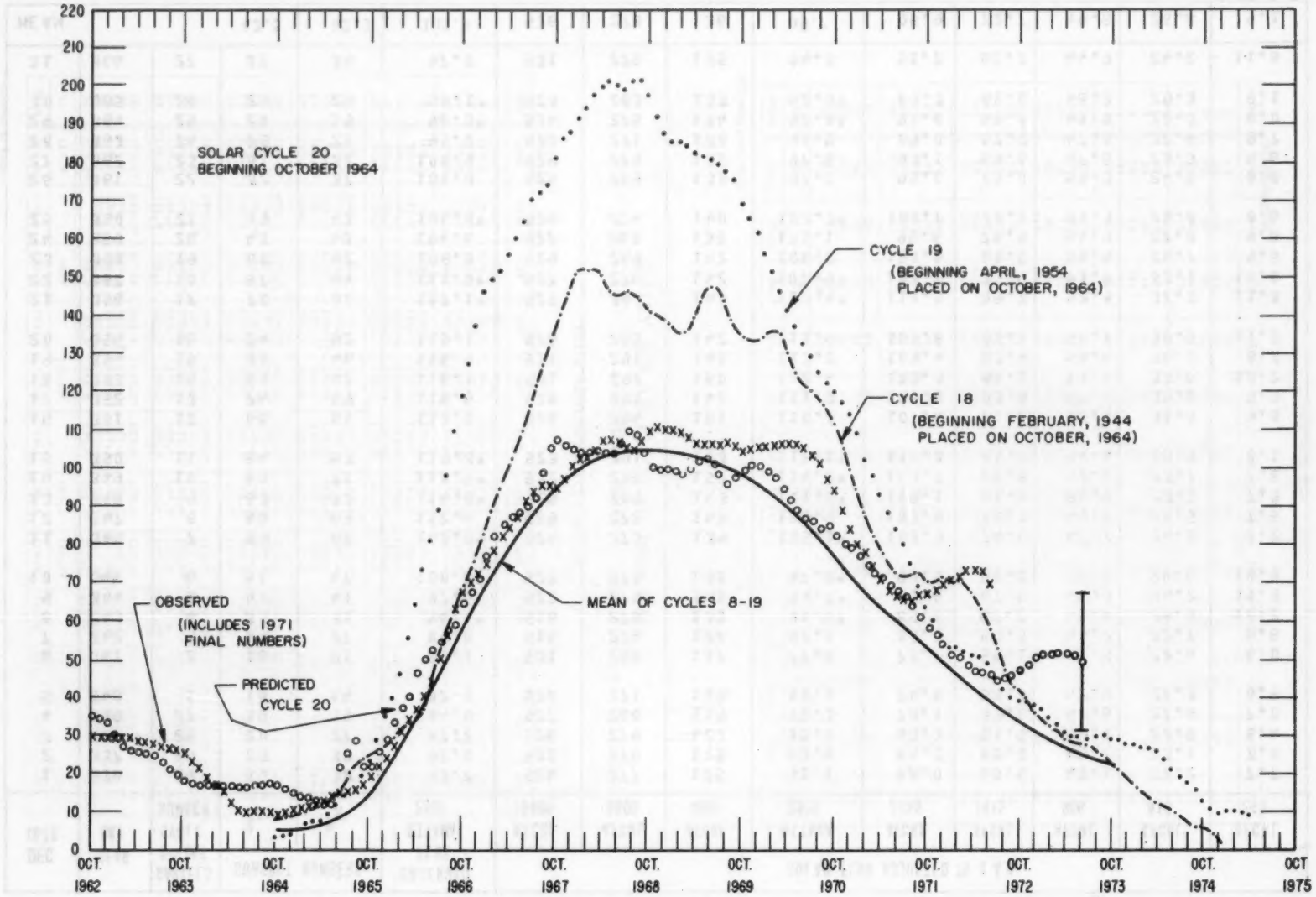
DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	104.7	106.7	125.5	96.0	95.0	128.2	133.0	156.3	144.3	114.7*	129.9	91.1
2	103.1	106.5	129.7	97.3	94.9	130.0	137.0	150.4	139.7*	108.4*	121.8*	89.4
3	99.6	104.8	131.1	98.1	97.7	137.5*	139.9	147.1*	129.4*	107.3	113.9	85.2
4	97.9	103.6	137.1	101.0	102.7	149.5*	146.7*	146.0	122.0	103.3	115.8	82.3
5	99.1	102.6	140.8	105.3	108.7	164.8	150.2	146.5	117.0*	100.6	102.6	80.4
6	103.1	98.6	143.7	110.1	117.6	159.1	146.1	143.4	119.2	98.4	93.2	77.8
7	99.5	102.2	143.3	121.3	120.9*	152.7	143.2	139.0*	110.4	96.1	85.7	87.1
8	98.8	104.3	141.6	123.8	128.8*	150.2*	136.7	125.3	115.9	97.2	82.5	91.6*
9	94.3	106.3	137.4	130.5	133.8	149.1*	127.1	123.8	112.9	100.5	82.3	94.7*
10	92.3	113.6*	132.5*	130.3	138.3	139.5	121.7	118.6	107.2	94.7	84.7	97.2*
11	95.8	118.4	134.9	129.8	140.8*	143.2*	123.6*	113.3*	102.7	93.5*	88.3	105.1*
12	99.6	123.9	128.5	128.3	148.6	149.7	119.3	107.6	100.6	94.7	88.7	108.9
13	99.8	126.3	129.3	128.4*	161.6	138.9*	119.9*	101.7	94.6	94.5	86.7	111.2*
14	105.8*	136.7	129.7	125.0	162.8	136.5	119.5	97.9	99.5	97.0	85.1	114.8*
15	115.4	145.8	135.3	126.0	164.6	139.5*	117.6	97.6	103.4	102.1*	86.5	116.1*
16	113.5*	153.2	133.0	124.3	161.8	142.7*	115.1	100.6	103.1	106.2	89.6	110.2
17	113.9*	168.2	133.8	120.3	169.3	149.6	114.6*	106.4	100.3	112.1*	91.5	111.9
18	110.9	184.4*	131.9	115.7	165.5	149.8*	108.9	109.6	102.6	111.0	94.6	112.4
19	115.9*	198.6	131.0	115.4	156.7	143.2*	108.9	116.2	106.2	117.1*	99.7	113.2
20	123.0	202.5*	135.2	111.3	152.3	142.5	110.9	117.9	113.2	122.2	109.4	111.4
21	127.9	189.6*	135.8	106.9	148.2	139.8*	111.7	119.5	113.4*	132.8*	109.3*	113.4*
22	123.2	168.4*	131.2	109.4	143.3	135.1	111.6	127.3*	119.4*	141.7	110.9*	107.9*
23	136.3	175.6	140.0*	108.4	135.2	130.7	109.6	122.9*	125.2*	151.2*	115.3*	106.2
24	137.2	164.2	126.6	110.2	135.5	128.5	109.5	122.6	126.8	156.5	115.4*	101.1
25	131.6	151.9	116.4	111.6	127.3	125.5	112.4	127.8	126.3*	171.8	112.7	103.3*
26	123.8*	149.3*	110.5	109.9	116.3*	120.8	120.6	137.4*	122.5*	170.0*	108.6	97.7
27	118.8	148.3	104.1	109.0*	114.3	121.9*	127.2	144.1	118.3*	167.6*	102.3	97.6
28	119.5	133.2	101.1	103.2	110.8*	127.3	133.3*	147.2*	116.4	159.1*	97.5	91.9
29	116.1	130.5*	96.5	98.6	116.2	132.4	139.1	163.3*	115.2		92.7	92.8*
30	112.9*		98.3	97.0	116.8	134.5	141.2*	163.3	118.5	144.6*	95.1	92.0*
31	111.9		95.7		122.5		150.2	154.2*		140.1*		94.3
MEAN	111.1	138.4	127.1	113.7	132.5	139.7	126.0	128.9	114.9	120.2	99.7	99.7

* adjusted for burst

DAILY SOLAR INDICES

DECEMBER 1972

DEC. 1972	YEAR DAY	BARTELS 27-DAY CYCLE NUMBER	SUNSPOT NUMBERS		OBSERVED FLUX	SOLAR FLUX ADJUSTED TO 1 A.U.								
			R_Z	$R_{A'}$	OTTAWA 2800	AFCRL 15400	AFCRL 8800	AFCRL 4995	OTTAWA 2800	AFCRL 2695	AFCRL 1415	AFCRL 606	AFCRL 410	AFCRL 245
1	336	24	35	32	93.7	524	277	125	91.1	88.0	68.6	49.1	27.2	7.7
2	337	25	23	30	92.0	522	275	125	89.4	84.2	65.2	46.7	23.1	7.0
3	338	26	20	27	87.7	526	270	123	85.2	80.3	61.5	44.1	22.5	6.4
4	339	27	20	19	84.8	527	268	119	82.3	78.1	59.6	43.6	27.4	7.0
5	340	1	18	14	82.8	522	271	119	80.4	74.6	58.3	42.4	27.3	6.5
6	341	2	18	21	80.1	531	268	117	77.8	73.7	55.1	41.3	22.4	6.0
7	342	3	24	27	89.8	514	274	126	87.1	83.7	59.3	44.2	22.7	6.6
8	343	4	33	31	94.4*	518	278	130	91.6*	89.6	62.2	46.4	28.9	10.2
9	344	5	42	41	97.6*	522	279	138	94.7*	91.4	67.5	44.8	24.2	11.9
10	345	6	51	47	100.2*	522	273	138	97.2*	93.5	68.3	45.5	24.6	10.0
11	346	7	59	65	108.5*	524	273	139	105.1*	102.9	74.5	47.7	24.0	7.2
12	347	8	60	69	112.4	529	278	145	108.9	105.9	79.1	49.5	28.5	7.5
13	348	9	63	73	114.8*	525	289	143	111.2*	109.1	81.9	50.9	23.1	7.3
14	349	10	60	71	118.5*	532	288	152	114.8*	113.3	82.8	52.1	23.7	7.6
15	350	11	64	53	119.8*	523	291	153	116.1*	112.8	84.7	54.4	25.9	8.1
16	351	12	66	61	113.8	538	294	151	110.2	107.4	81.6	53.4	31.8	9.8
17	352	13	76	59	115.6	528	290	142	111.9	108.0	83.8	59.6	38.6	9.9
18	353	14	51	42	116.1	531	292	150	112.4	109.3	86.1	55.8	33.6	10.2
19	354	15	38	46	116.9	531	291	148	113.2	109.4	83.4	56.4	26.1	8.7
20	355	16	54	52	115.1	528	285	142	111.4	105.8	85.7	57.7	30.5	11.0
21	356	17	70	80	117.1*	525	283	148	113.4*	111.5	89.7	58.8	37.0	11.8
22	357	18	57	44	111.5*	527	276	142	107.9*	103.2	79.4	53.5	33.1	18.8
23	358	19	60	47	109.8	529	269	142	106.2	101.6	80.5	56.6	26.7	9.5
24	359	20	43	40	104.6	522	268	135	101.1	96.6	76.9	54.9	27.0	9.8
25	360	21	39	43	106.8*	526	274	140	103.3*	100.7	78.7	54.3	25.8	8.6
26	361	22	32	37	101.0	525	269	133	97.7	95.0	75.0	50.3	24.5	8.8
27	362	23	31	32	100.9	529	270	135	97.6	93.1	69.8	47.6	23.5	9.6
28	363	24	26	21	95.0	530	271	133	91.9	89.0	67.9	47.8	27.4	9.7
29	364	25	20	19	96.0*	534	275	134	92.8*	91.8	66.1	48.5	28.3	8.0
30	365	26	29	29	95.1*	523	283	133	92.0*	89.3	65.6	46.2	29.3	9.1
31	366	27	37	39	97.5	531	276	135	94.3	91.2	65.3	44.9	24.2	11.8
MEAN			42.5	42.3	102.9	526	278	136	99.7	95.9	72.7	49.6	26.8	9.1



PREDICTED AND OBSERVED SUNSPOT NUMBERS

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS

CYCLE 20

MONTH	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
1964										9.6	10.2	11.0
1965	11.7	12.0	12.5	13.6	14.6	15.0	15.5	16.4	17.4	19.7	22.3	24.8
1966	27.7	31.3	34.5	37.4	40.7	44.6	50.3	56.6	63.1	67.6	70.2	72.7
1967	75.0	78.0	82.2	84.6	87.4	91.3	94.1	95.3	95.3	95.0	97.1	100.6
1968	102.6	102.9	104.7	107.2	107.6	106.6	105.2	104.8	107.0	109.9	110.6	110.1
1969	110.0	109.6	108.0	106.4	106.2	106.1	105.8	106.4	105.4	104.1	104.6	104.9
1970	105.6	106.0	106.2	106.1	105.8	105.3	103.8	101.0	97.2	93.9	89.4	84.1
1971	80.4	77.8	74.4	70.9	68.1	66.7	65.5	65.0	66.4	67.1	67.6	69.9
1972	71.2	71.6	72.6	73.2	72.3	69.5	66.2 (4)	63.2 (9)	62.4 (11)	62.8 (13)	61.9 (14)	60.5 (16)
1973	59.0 (17)	57.0 (17)	54.9 (17)	52.6 (17)	50.9 (18)	49.1 (18)	47.8 (18)	47.0 (18)	45.2 (19)	42.6 (20)	40.2 (19)	38.3 (18)
1974	36.9 (18)	35.7 (18)	34.6 (19)	33.6 (19)	32.9 (20)	31.8 (20)	30.2 (19)	28.3 (19)	26.1 (18)	24.0 (18)	21.8 (18)	20.4 (17)
1975	19.4 (16)	18.2 (15)										

For each month, the upper figure is the observed or predicted Zürich smoothed sunspot number. The lower figure in parenthesis is the corresponding absolute value of the 90% prediction interval, an indication of the uncertainty above and below the predicted number. Observed numbers are those with no prediction intervals. The observed smoothed sunspot numbers are based on final Zürich numbers through 1971.

The predicted sunspot numbers are derived from a regression analysis based on cycles 8 through 19. Tests indicate that earlier cycles are from a different statistical population. From July 1968 - February 1970 a regression analysis based on cycles 1 through 19 was used because it had not then been proven that two populations exist.

SOLAR FLARES

PARTIAL LISTING

Solar Flares for which at least one observatory has assigned a numerical importance of "1" or greater.

DECEMBER 1972

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE 1972 DEC	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
MANI	08	2308E	2400	2310	N10	E40	.656	12136	12.0	60D	2B	2		2310	3.92	5.13			
WEND	12	1219	1247		S18	E41	.694	12139	15.6	28	1F		V		4.13				
MONT	14	1229	1240D	1235	N13	W40	.669		11.5	11D	SN		C	1235	.72				
RAMY	14	1236	1352	1248	N11	W39	.650		11.6	76	SF	3	C		1.49				DE
WEND	14	1257E	1330D		N11	W42	.687	12136	11.4	33D	1N		P		4.13				
MANI	15	0536E	0655	0550	S05	E48	.744	12143	18.8	79D	1B	2		0550	3.09	4.77			
TEHR	15	0656E	0714D	0657U	S04	E50	.767		19.0	18D	1N	1	C		2.56				F
MANI	16	0346E	0428	0348	N11	W57	.847	12136	11.9	42D	1B	1		0348	1.55	1.77			
TEHR	16	0354E	0434	0354U	N12	W58	.857		11.8	40D	2B	2	C		3.71				F
MITK	16	0408E	0445D		N11	W58	.856	12136	11.8	37D	1N		C	0408	2.48	4.80			E
MITK	18	0040	0115	0055	S05	E12	.217	12143	18.9	35	1N		C	0055	4.54	4.80			EG
MANI	18	0041	0102	0045	S08	E10	.208		18.8	21	SF	2		0045	.83	.85			
MANI	18	0645	0743	0654	S08	E07	.168	12143	18.8	58	1N	2		0654	3.09	3.15			
TEHR	18	0645	0805	0702	S06	E05	.120		18.7	80	SN	3	C		2.19				F
MITK	21	0036	0059	0039	N11	E39	.653	12149	24.0	23	1N		C	0039	2.89	3.90			E
MITK	21	0228	0324	0246	N11	E38	.641	12149	24.0	56	1N		C	0246	2.78	3.80			E
WEND	22	1409	1446		N12	E14	.335	12149	23.6	37	1F		V		4.13				
CATA	25	0955	1030	1010	N16	W90	1.000	12142	18.7	35	1F	3		1010	.58			(123)	
WEND	26	1221E	1237		N10	W40	.665	12149	23.5	16D	1N		V		3.09				
RAMY	26	1226E	1245	1226U	N12	W41	.684		23.4	19D	SF	4	C		.33				DE
MANI	31	0225E	0238	0232	N07	E74	.964		5.7	13D	SN	2		0232	.62	1.44			
PALE	31	0226	0246D	0231	N07	E73	.959		5.6	20D	SF	2	C		.55				F
MITK	31	0228E	0251D	0231	N06	E75	.968	12160	5.7	23D	1N		C	0231	1.13				E

"Remarks":
A = Eruptive prominence, base at >90°
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No spots visible in the neighborhood.
H = Flare with high velocity dark surge.
I = Very extensive active region.
J = Plage with flare shows marked intensity variations.
K = Several intensity maxima.
L = Filaments show effects of sudden activation.
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the calcium II lines H or K.
P = Flare shows helium D_3 in emission.
Q = Flare shows the Balmer continuum in emission.
R = Marked asymmetry in Hα line.
S = Brightening follows disappearance of filament (same position).
T = Region active all day.
U = Close and somewhat parallel bright filaments (|| or Y shape).
V = Occurrence of an explosive phase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide Hα emission.
Y = Onset of a system of loop-type prominences.
Z = Major sunspot umbra covered by flare.

Note: Catania and Capri-S express Maximum Intensities in percent of the local undisturbed chromosphere instead of percent of the local continuum. Parentheses are used to indicate this difference.

SOLAR FLARES

Date, time (UT) and coordinates of Subflares not included in preceding table.

DECEMBER 1972

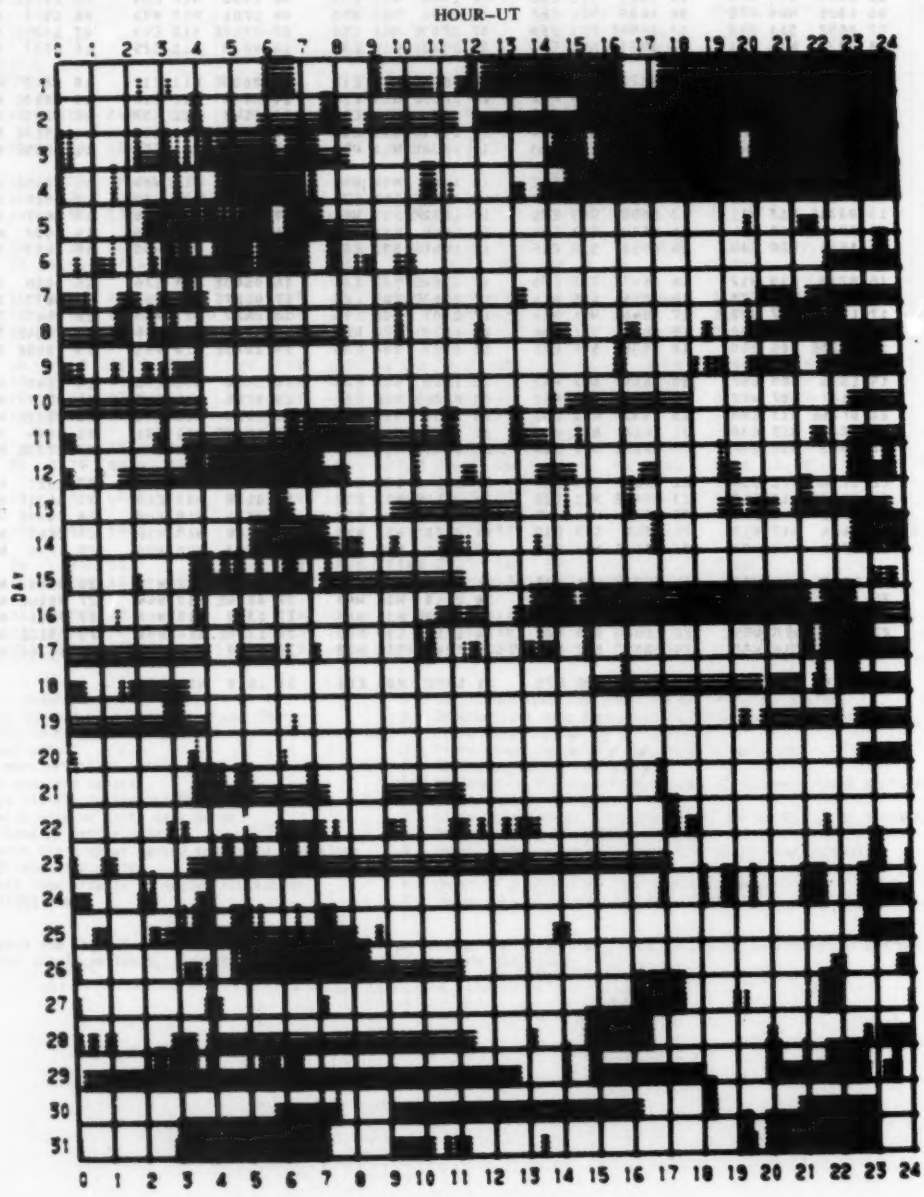
01	0231	S17	W26	01	0451E	S14	W09	01	1700E	N20	E20	03	1020	S11	W60
05	1158	S17	W27	05	1325	S19	W24	05	1910	N11	E86	06	1318	N12	E69
06	1322E	N11	E69	06	1325	N89	E70	06	1629	N11	E67	06	1701	N03	W08
06	1933	N12	E67	07	0652	S11	E60	07	0654E	N11	E58	07	0705E	N11	E59
08	0252E	N09	E52	08	0735	N11	E51	08	1530E	N11	E43	09	0038E	N10	E37
10	0033	N12	E26	10	0033	N12	E26	10	0623	N12	E18	10	0625E	N11	E17
10	0812	N10	E20	10	0813	N10	E22	10	0813	N10	E22	10	1755E	N10	E13
11	0501	N12	E07	11	0731	N12	E07	11	0855E	N11	E03	11	1000E	N12	E04
11	1219	S18	E14	11	1403E	N23	E56	11	1431	N10	W01	11	1451E	S19	E52
11	1722	N12	E02	11	1722	N11	E03	11	1725E	N11	W03	11	1805E	N10	W08
11	1943E	S19	E47	11	1945	N11	E02	11	1945	N11	E02	11	1945	N12	W01
12	0712E	S19	E42	12	0855E	S19	E42	12	0934	N13	W03	12	1128E	S18	E38
13	0330	N12	W12	13	0331E	N13	W11	13	0806	S09	E26	13	1032E	N11	W18
13	2237	N10	W18	13	2341	S18	E24	14	0739	S19	E20	14	0806	N10	W42
14	1155	S03	E60	14	1518	S20	E13	14	1518	S19	E15	15	1340E	S20	E02
15	1810	N12	W61	16	0239	S19	W12	16	0503E	S03	E36	16	0504E	S07	E36
16	0950E	S05	E35	16	1436E	S04	E28	16	2056	S20	W14	17	0013E	S05	E25
17	1214	S17	W31	17	1438	S07	E22	17	1646E	N11	W74	17	2003	S07	E13
18	0457	S06	E06	18	0605	S21	W40	18	0606	S21	W44	18	1222	S20	W80
18	2028E	S06	E00	18	2028E	S06	E00	18	2030	S07	E01	18	2150	S07	E24
19	1105	S21	W90	19	1326	S09	E87	19	1644E	S07	W12	19	1656	S09	E86
19	2025	S05	E11	19	2137	S07	W12	19	2137	S07	W12	20	0226E	N16	E17
20	0409	S09	W21	20	0726E	N11	E50	20	1937	N11	E41	20	1937	N12	E41
21	1039E	N12	E37	21	1227E	N15	E30	21	1418	N15	W06	21	1607	N10	E31
21	1946E	N12	E28	22	0003	N12	E27	22	0602E	N13	E24	22	0630E	N11	E22
22	0810	N12	E22	22	1010E	N11	E18	22	1124E	S08	E50	22	1124E	S09	E47
22	1846	N11	E15	22	2253E	N11	E13	23	0046E	N11	E10	23	0144E	N13	E12
23	0516	N10	E08	23	0845	N11	E08	23	1342	N11	E05	23	1444E	N11	E01
24	0714E	N10	W06	24	1424	N12	W13	24	1542	S13	E15	24	2028	N13	W15
25	0050	N10	W20	25	0755	N12	W22	25	0800E	N13	W23	25	0900	N19	W50
25	1255	N11	W27	25	2305E	N12	W37	26	0033	N11	W35	26	0218	N13	W37
26	1816	N14	W40	26	1818	N13	W42	26	2010	N10	W48	26	2010	N10	W48
27	0044	N13	W48	27	0117	N13	W47	27	0120	N12	W47	27	0120E	N11	W44
27	0825	N11	W50	27	1345E	N10	W56	28	1158	S15	W87	28	1318	S15	W88
29	0404E	S16	W25	29	0627E	S16	W26	29	1339	S12	E61	30	0245	S16	W39
30	1859	N05	E80	30	1859	N85	E80	30	1907E	N06	E79	31	1302	N08	E69

04	1120	S12	W85	05	0602E	S14	W19	06	1318	N12	E69	06	1320E	N13	E71
06	1701	N03	W08	06	1933	N12	E67	07	0815E	N10	E59	07	1135E	N13	E64
09	0038E	N10	E37	10	0033	N11	E25	10	0625E	N11	E17	10	0812	N10	E21
10	1755E	N10	E13	10	1846	N12	E18	10	1853E	N12	E12	11	1201	N11	E03
11	1451E	S19	E52	11	1512E	S21	E52	11	1513E	S18	E51	11	1722	N12	E02
11	1805E	N10	W08	11	1849	N11	E02	11	1939E	N18	E56	11	1943E	S19	E47
11	1945	N12	W01	11	1946	N10	W05	11	2245E	S10	E08	12	0712E	S19	E42
12	1128E	S18	E38	12	1518E	S20	E39	12	1805	S21	E38	13	0330	N12	W12
13	1032E	N11	W18	13	1340	N12	W20	13	1647	N11	W28	13	2237	N10	W18
14	0806	N10	W42	14	0824	S19	E15	14	1032	N11	W44	14	1155	S03	E60
15	1340E	S20	E02	15	1650	S19	W00	15	1653	S20	W04	15	1810	N12	W61
16	0504E	S07	E36	16	0540E	S08	E36	16	0628	S18	W18	16	0950E	S05	E35
17	0013E	S05	E25	17	0027E	N12	W66	17	0033	S04	E25	17	1214	S17	W31
17	2003	S07	E13	18	0423	S21	W43	18	0447	S08	E08	18	0457	S06	E06
18	1222	S20	W80	18	1228	S21	W85	18	1804E	S23	W49	18	2028E	S06	E00
18	2150	S07	E24	19	1005E	S18	W59	19	1045E	S17	W56	19	1105	S21	W90
19	1656	S09	E86	19	1808	N01	E86	19	1848	N15	E17	19	2025	S05	E11
20	0226E	N16	E17	20	0226	N14	E17	20	0227	N14	E16	20	0409	S09	W21
20	1937	N12	E41	20	2015	N11	E41	20	2212E	N12	E40	21	1039E	N12	E37
21	1607	N10	E31	21	1612E	N11	E31	21	1944	N12	E30	21	1946E	N12	E28
22	0630E	N11	E22	22	0730E	N11	E21	22	0733E	N11	E20	22	0810	N12	E22
22	1124E	S09	E47	22	1436	S09	E38	22	1521	N10	E15	22	1846	N11	E15
23	0144E	N13	E12	23	0145	N12	E14	23	0431E	N10	E10	23	0516	N10	E08
23	1444E	N11	E01	23	2339	N10	W05	24	0439E	N09	W07	24	0714E	N10	W06
24	2028	N13	W15	24	2205	N13	W16	24	2205	N10	W18	25	0050	N10	W20
25	0900	N19	W50	25	0902	N18	W50	25	1220	N19	W52	25	1255	N11	W27
26	0218	N13	W37	26	0220E	N12	W38	26	0240	N13	W38	26	1816	N14	W40
26	2010	N10	W48	27	0004E	N12	W44	27	0006E	N14	W43	27	0044	N13	W48
27	0120E	N11	W44	27	0300	N18	W48	27	0301	N17	W41	27	0825	N11	W50
28	1318	S15	W88	28	1320E	S14	W90	29	0312E	S16	W25	29	0404E	S16	W25
30	0245	S16	W39	30	0319	S16	W39	30	1438E	N08	E88	30	1859	N05	E80
31	1302	N08	E69	31	1610	N05	E73								

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

DECEMBER 1972



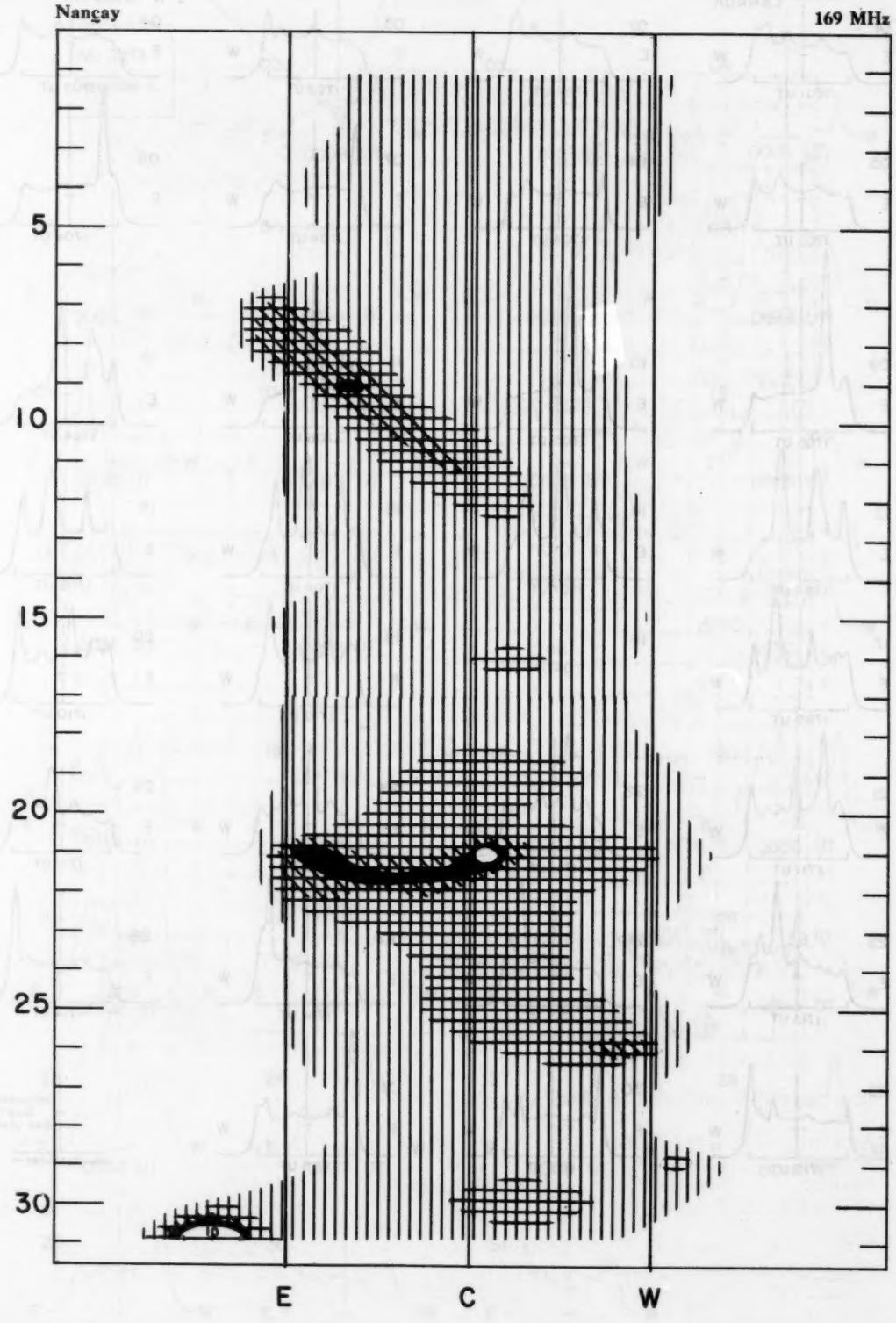
Observatories included in total patrol:

Arcetri	Capri-F (German)	Locarno	Mitaka	Ramey
Athenes	Catania	Manila	Monte Mario	Tehran
Boulder	Herstmonceux	McMath-Hulbert	Ondrejov	Upice
Bucharest	Istanboul	Meudon	Palehua	Wendelstein

Times of no flare patrol are shown by the shaded area for each day divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATION

DECEMBER 1972

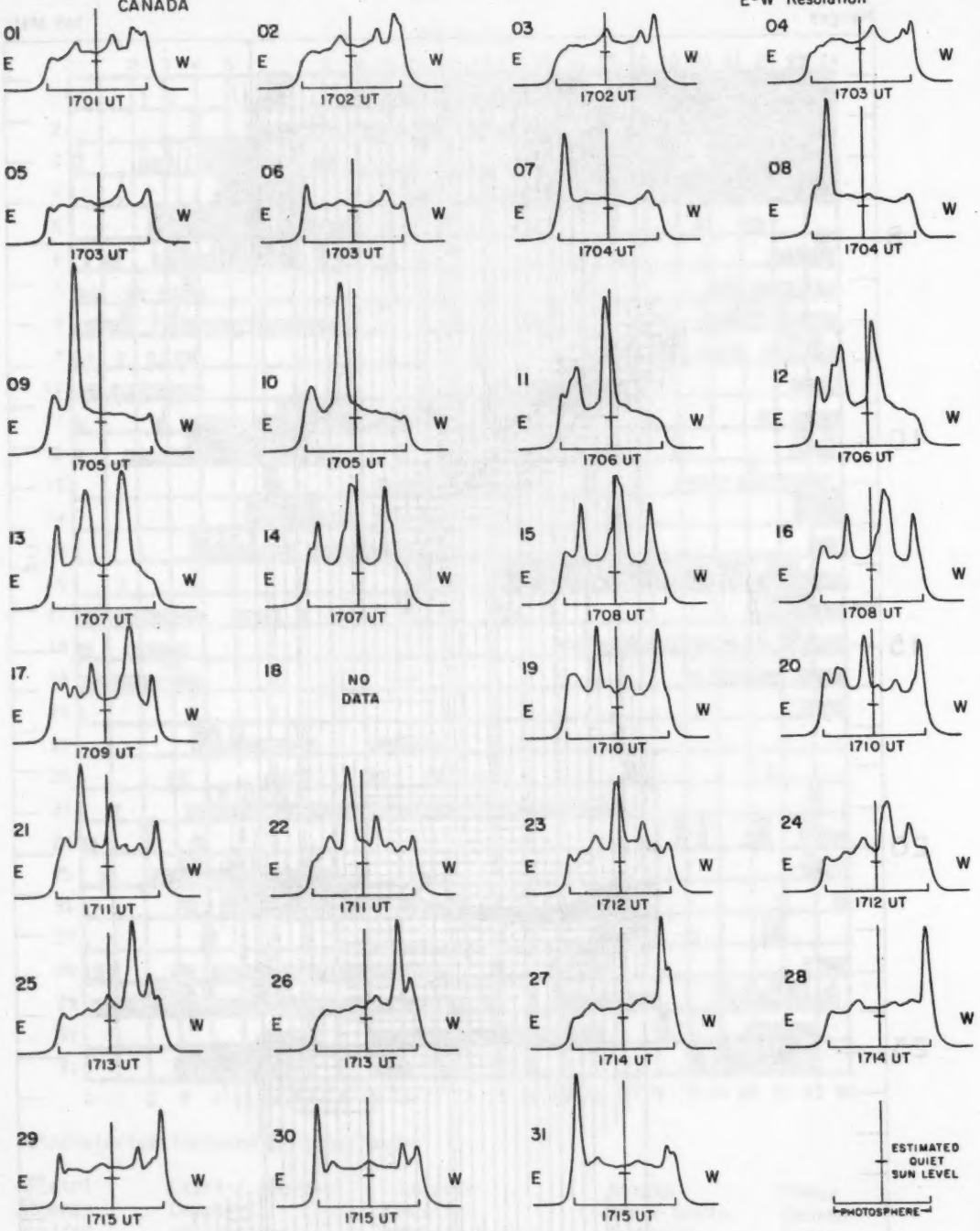


EAST – WEST SOLAR SCANS

December 1972

ALGONQUIN RADIO OBSERVATORY
CANADA

10.7 cm
Fan – Beam with 1.5 minutes of arc
E-W Resolution



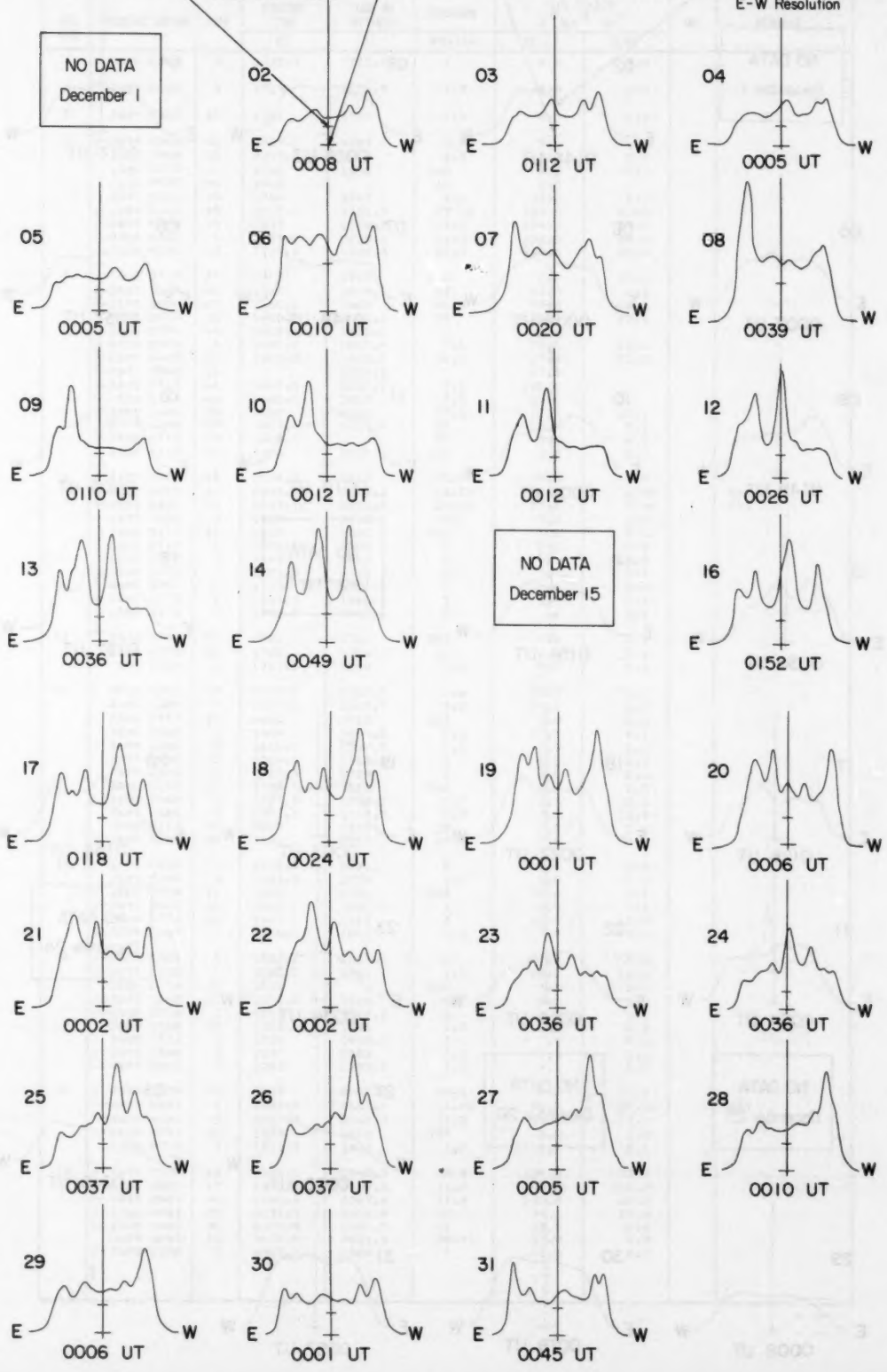
EAST-WEST SOLAR SCANS

DECEMBER 1972

Fleurs, Australia

ESTIMATED QUIET SUN LEVEL
COLD SKY LEVEL

21 cm
Fan-Beam with 2 minutes of arc
E-W Resolution



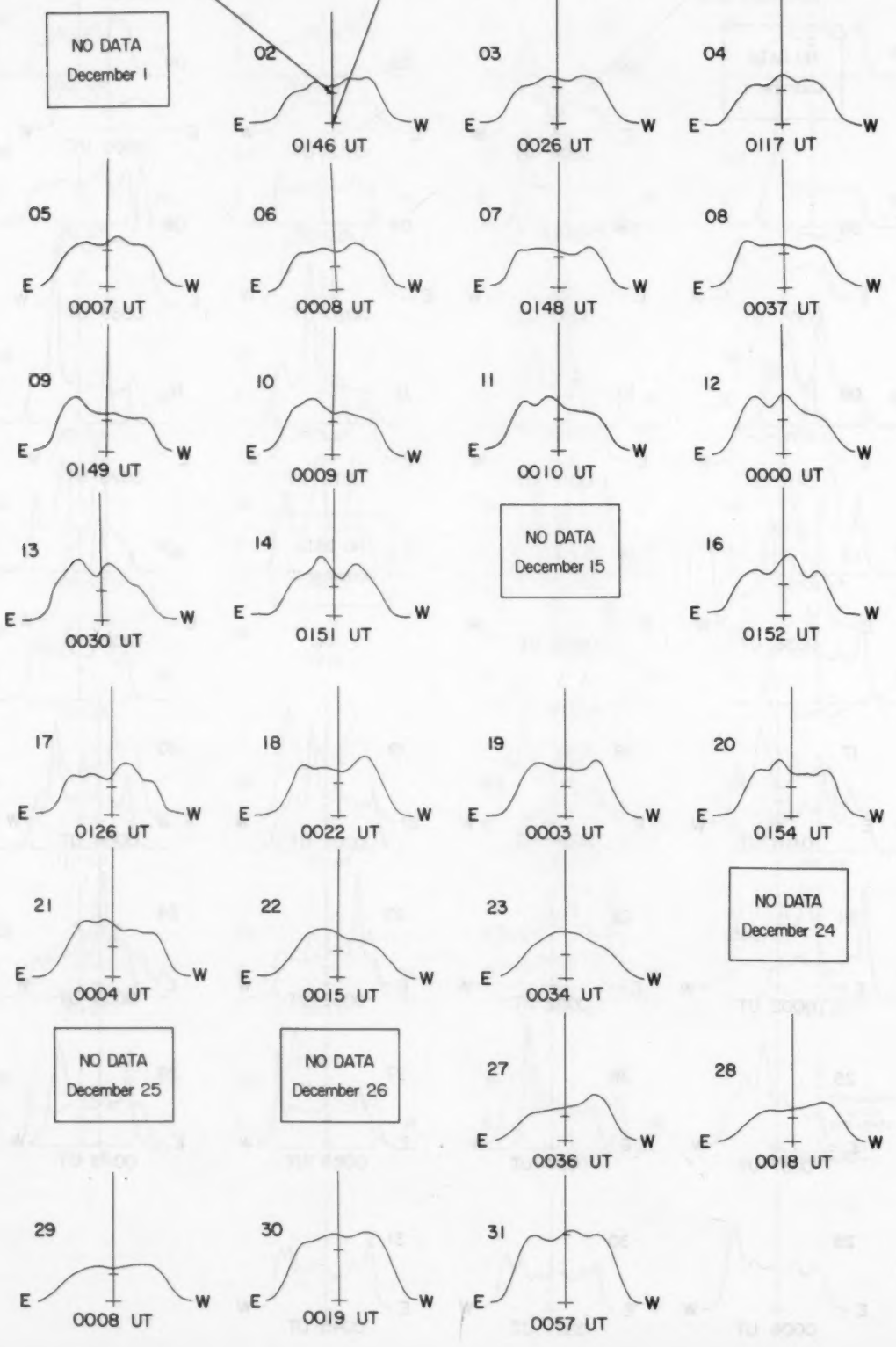
EAST-WEST SOLAR SCANS

DECEMBER 1972

Fleurs, Australia

ESTIMATED QUIET SUN LEVEL
COLD SKY LEVEL

43 cm
Fan-Beam with 4 minutes of arc
E-W Resolution



SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS
DECEMBER 1972

DEC 1972	FREQUENCY STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
			UT	UT	MINUTES	PEAK	MEAN		
1	2695 CANR	3	1720.5	1722.5	3	4.0	1.0		
6	2695 CANR	3	1724	1726.5	3.5	5.0	2.0		
7	2695 CANR	45	1701	1705	4.5	4.0	1.0		
8	2695 CRON	45	0239.5	0243	8.5	5.0	1.0		
	2695 CRON	45	0239.5	0246	8.5	5.0	1.0		
	2800 OTTA	20	1550	1830	260	3.2	1.6		
	2695 PENT	24	2040		40	2.0			
	2695 BOUL	45	2246	2247	4.5	16.0	5.0		
	2695 BOUL	45	2253.5	2302.5	19 D	156.0	47.0		
	2695 CRON	45	2255	2302.5	25.5	134.0	39.0		
	8800 MANI	4	2255.7	2259.2	41.3	330.0	89.0		
	2695 MANI	46	2255.6	2302.8	26.1	169.0	40.2		
9	2800 OTTA	21	1405	1815	310	2.8	24.0		
	2695 CANR	45	1559	1605.5	92	89.0	9.0		
	2695 BOUL	45	1600.5	1606	94.5	93.0	20.0		
	2800 OTTA	46	1600.5	1605.2	19	100.0	27.3		
	2800 OTTA	46	1600.5	1602.5	3	43.5			
	8800 SGMR	4	1600.5	1605.4	9.5	53.6	13.4		
	2695 SGMR	46	1600.9	1602.5	16.3	37.8	22.0		
	2695 SGMR	46		1605.3		87.8			
	2800 OTTA	46	1603.5	1605.2	3.2	100.0			
	2800 OTTA	46	1606.7	1607	12.8	67.6			
	8800 SGMR	29	1610	1610	30.5	20.3	10.1		
	2695 SGMR	29	1617.4	1617.4	28	10.8	5.4		
	2800 OTTA	29	1619.5		90	8.0	4.0		
	2800 OTTA	20	1920	2025	150	3.8	3.0		
10	2695 CRON	45	0032.5	0052	75.5	29.0	7.0		
	8800 MANI	22	0033.2	0043.8	14.1D	16.2	2.0D		RFI
	2695 MANI	22	0033.1U	0052.8	25.4U	33.5	7.4U		RFI
	2695 CRON	3	0622	0625	5.5	5.0	2.0		
	2800 OTTA	21	1415	1820	335	4.8	2.4		
	2800 OTTA	1	1505.5	1506	1	2.0	1.0		
	2800 OTTA	1	1643	1644	2	1.0	5.0		
	2800 OTTA	1	1754.5	1755	2	1.4	0.7		
	2695 BOUL	3	1755	1755.5	1	3.0	1.0		
	2800 OTTA	1	1845.5	1846.3	5	1.0	0.5		
	2800 OTTA	1	1906.5	1907.1	2	.8	0.4		
11	2800 OTTA	21	1550	1740	335	4.2	2.1		
	2800 OTTA	20	1722	1724	11	2.4	1.2		
	2695 CANR	3	1737.5	1739	2.5	9.0	3.0		
12	8800 MANI	4	0708.5	0708.9	1.8	29.3	6.3		
	8800 SGMR	3	1327.6	1327.9	3.3	10.1	4.0		
	2800 OTTA	20	1400	1503	155	5.0	2.8		
	8800 SGMR	3	1654	1654.3	1.6	10.1	4.1		
	2695 CANR	3	1656.5	1657.5	1.5	3.0	1.0		
	2695 CANR	3	1714.5	1716.5	4	6.0	2.0		
	2695 CANR	3	1727.5	1729	5	6.0	2.0		
	2800 OTTA	21	1728	1852	162	3.0	1.8		
	2695 CANR	3	1737.5	1738.5	2.5	6.0	2.0		
	2695 CANR	3	1747.5	1748.5	2.5	7.0	3.0		
	2800 OTTA	22	1807	1812	10	2.0	1.2		
	2695 PENT	20	2020	2055	80	1.6	0.8		
13	2695 CRON	3	0328.5	0330	5	7.0	3.0		
	2695 CANR	3	1027.5	1029	2.5	3.0	1.0		
	2800 OTTA	21	1600	1720	240	10.0	4.9		
	2695 BOUL	45	1642	1647.5	7	9.0	3.0		
	2800 OTTA	45	1642	1647	8	32.0	11.0		
	2695 CANR	3	1646.5	1647	1.5	7.0	3.0		
14	2695 CRON	8	1032.5	1033.5	2	21.0	7.0		
	2695 CANR	8	1033.5	1034	3.5	24.0	10.0		
	2800 OTTA	21	1515		160	3.0	1.8		
	2695 CANR	21	1518.5	1519	4	5.0	2.0		
	2800 OTTA	1	1518	1519.2	6	6.8	2.2		
	2695 CANR	45	1735	1736	2.5	6.0	2.0		
	2800 OTTA	1	1910	1910.1	1	.9	0.4		
	2695 CRON	3	2251	2253	2.5	12.0	4.0		
	2695 BOUL	8	2253	2253.5	1.5	9.0	4.0		
15	2695 CRON	45	0538	0538.5	60.5	74.0	17.0		
	2695 MANI	4	0538.4	0542.4	11.4U	86.0	30.8U		RFI
	8800 MANI	3	0539.8	0542.7	11.5	51.0	17.1		
	2800 OTTA	20	1528	1600	105	2.0	1.0		
	2800 OTTA	1	1811.5	1812	1.5	1.2	0.6		
16	2695 CRON	40	0339.5	0348.5	68.5	194.0	52.0		
	8800 MANI	47	0340.5	0347.5	11.4	1390.0	220.0		
	2695 MANI	46	0340.4	0347.4	11.5	230.0	60.0		
	8800 MANI	29	0351.9	0351.9	47	74.0	19.9		
	2695 MANI	30	0351.9	0351.9	65	15.5	6.0		
	2695 MANI	41	0406.3	0419.5	18.4	17.9	6.0		
	2695 CRON	8	0502.5	0504	5	22.0	6.0		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS
DECEMBER 1972

DEC 1972	FREQUENCY STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
	2695 MANI	4	0502.7	0503.9	1.7	22.6	4.8		
	2800 OTTA	21	1405	1445	160	1.8	1.1		
	2800 OTTA	1	1426.9	1427	.5	.8	0.4		
	2800 OTTA	20	1805	1845	105	2.0	1.2		
	8800 SGMR	46	2054.9	2055.1	4.4	28.3	6.0		
	8800 SGMR	46		2056.4		27.3			
	2695 SGMR	46	2054.7	2055.4	5.1	48.8	12.0		
	2695 SGMR	46		2056.2		48.3			
	2800 OTTA	4	2154.7	2155.5	4	50.0	25.0		
	2695 PENT	29	2158.7		40	7.8	2.9		
	2695 BOUL	21	2255.5	2256.5	26.5	52.0	10.0		
17	2695 CANR	3	0824	0825	1.5	7.0	2.0		
	2800 OTTA	24	1430		15	2.0			
	2695 CANR	8	1726	1727	1.5	9.0	3.0		
	2800 OTTA	20	1905	1930	40	1.0	0.5		
	2695 PENT	21	2002	2009	15	2.4	1.2		
	2800 OTTA	3	2003.9	2004	1	12.0	60.0		
	2695 BOUL	8	2004	2004.5	1	11.0	4.0		
	2695 PENT	20	2045	2115	50	2.2	1.1		
	2695 BOUL	3	2236.5	2237.5	2	4.0	2.0		
	2695 CRON	45	2254	2257.5	11.5	7.0	2.0		
18	2695 CANR	3	0819.5	0819	1.5	3.0	1.0		
	2695 CANR	3	0827.5	0828.5	1.5	4.0	1.0		
19	2800 OTTA	20	1730	1935	245	20.0	12.0		
20	2695 SGMR	46	1834.5	1834.6	.9	6.6	3.0		
	2695 SGMR	46		1834.9		5.8			
21	2695 CANR	3	1418	1418.5	1.5	3.0	1.0		
	2800 OTTA	2	1418.2	1418.7	4	14.0	7.0		
	2800 OTTA	20	1455	1655	245	3.0	1.8		
	2695 CANR	45	1737.5	1738.5	5	6.0	2.0		
	2695 CANR	3	1755.5	1757	2.5	12.0	4.0		
	2800 OTTA	20	1905	1955	135	2.0	1.0		
	2695 BOUL	3	2200.5	2201.5	2	4.0	2.0		
22	2800 OTTA	20	1410	1655	230	4.2	2.6		
	2695 CANR	3	1729	1730	1.5	3.0	1.0		
	2800 OTTA	20	1805	1935	200	2.2	1.1		
23	2800 OTTA	20	1432	1437	10	1.8	0.9		
	2800 OTTA	21	1443	1505	85	2.6	1.3		
	2695 CANR	3	1444	1445.5	2.5	3.0	1.0		
	2800 OTTA	1	1444	1445.5	5	26.0	13.0		
	2800 OTTA	1	1514	1514.7	1	1.0	0.5		
	2695 CANR	3	1726.5	1727.5	2	7.0	2.0		
24	2695 CRON	3	1045.5	1046	1.5	6.0	2.0		
	2695 CANR	3	1612	1613	2	4.0	2.0		
	2695 PENT	2	2205.5	2206	2.5	2.4	1.4		
25	2695 CANR	8	1221.5	1222	1	9.0	4.0		
	2800 OTTA	20	1410	1535	190	2.6	1.3		
26	2695 SGMR	22	1812.5	1818.4	23.9	3.2	1.5		
	2695 CRON	3	2359		2.5	5.0	2.0		
27	8800 SGMR	3	2101.9	2102.2	1.1U	21.4	5.0		
	2695 SGMR	3	2101.6	2102.3	1.4U	17.9	4.0		
28	2800 OTTA	20	1742	1748	55	1.4	0.7		
29	2800 OTTA	20	1420	1525	335	3.8	3.2		
30	2695 CRON	3	0022	0026	4.5	4.0	1.0		
	2695 CANR	45	1430.5	1432	3	7.0	3.0		
	2800 OTTA	21	1430	1510	90	3.2	1.6		
	2800 OTTA	2	1431.5	1432.8	3	5.4	2.7		
	8800 SGMR	4	1431.6	1432.7	3	11.0	3.5		
	2695 SGMR	46	1431.5	1431.8	4.3	4.6	3.1		
	2695 SGMR	46		1432.7		6.4			
	2800 OTTA	1	1552.6	1553	1	2.2	1.0		
	2800 OTTA	20	1805	1915	110	1.8	0.9		
	2695 PENT	8	2205	2205.1	.3	4.6			
31	2695 CRON	3	0309	0309.5	1.5	2.0	1.0		
	2695 CRON	8	0432	0432.5	1.5	40.0	14.0		
	2695 CANR	45	1720.5	1724	4.5	7.0	2.0		
	2695 PENT	20	2037	2037.5	15	1.8	0.9		

Observatories:

BOUL = Boulder CRON = Carnarvon OTTA = Ottawa ARO PENT = Penticton SGMR = Sagamore Hill
CANR = Canary Islands MANI = Manila

Explanation of Type Code:

1 Simple 1
2 Simple 1F
3 Simple 2
4 Simple 2F
5 Simple
6 Minor
7 Minor +
8 Spike
20 Simple 3
21 Simple 3A
22 Simple 3F
23 Simple 3AF
24 Rise
25 Rise A
26 Fall
27 Rise and Fall
28 Precursor
29 Post Burst Increase
30 Post Burst Increase A
31 Post Burst Decrease
32 Absorption
40 Fluctuation
41 Group of Bursts
42 Series of Bursts
43 Onset of Noise Storm
44 Noise storm in Progress
45 Complex
46 Complex F
47 Great Burst
48 Major
49 Major +

PIONEER IX

DECEMBER 1972

Date Dec. 1972	Time (UT)	ESP (°)	Solar Wind[1]		IP E-Field[2]	IP Magnetic Field[3]			Cosmic Ray Protons[4] (particles/sec)	
			U_{H^+} (km/sec)	TAU (Days)	400 Hz (mv)	/B/ (Gamma)	ϕ (°)	Condition	>13.9 Mev	>40 Mev
1	1500	026.95	282	1.9987	0.155	3.4	303	slightly dis-	6.18	1.24
	1900		282		0.205			turbed (1)	6.10	1.15
5	1100	027.29	350	2.024	0.187				5.88	1.11
	1500		376		0.215	6.5	337	quiet (2)	6.05	.8
	1900		376		0.171				6.11	1.1
6	1100	027.38	376	2.0295	0.198			disturbed (3)	6.11	.98
	1500		350		0.195	2.5	174	quiet (4)	6.02	1.03
	1900		376		0.195				6.23	1.03
	2300		363		0.156	2.9	156	quiet (5)	6.23	1.09
7	0300	027.46	363	2.0344	0.179				6.14	1.48
	1500		350		0.242	1.7	357	very dis-	6.52	1.09
	1900		350		0.205			turbed	6.20	1.31
12	1100	027.89	468	2.0721	0.26				6.42	1.33
	1500		468		0.198	4.3	160	disturbed	6.39	1.29
	1900		468		0.215				6.56	1.11
13	1100	027.98	449	2.0781	0.163				6.33	1.19
	1500		449		0.198	6.5	173	quiet (6)	6.39	1.23
	1900		468		0.281				6.34	.89
14	1500	028.07	468	2.086	0.187	10.6	234	disturbed(7)	6.10	1.11
	1900		468		0.233				6.39	1.19
15	1500	028.15	585	2.0967	0.287	4.2	137	disturbed(8)	6.13	1.15
	1900		585		0.284				6.15	1.16
20	1500	028.57	404	2.1289	0.14	4.8	331	slightly dis-	6.30	1.13
	1900		390		0.179			turbed (9)	6.20	1.34
22	1500	028.73	468	2.1466	0.222	7.6	009	slightly dis-	6.05	1.14
	1900		468		0.171			turbed (10)	5.81	1.24
25	1000	028.96	338	2.1705	0.203				6.23	1.16
	1400		325		0.199	6.5	350	quiet (11)	6.04	1.20
	1800		325		0.188				6.10	.97
26	1000	029.04	350	2.1799	0.222				6.13	1.23
	1400		350		0.233	7.6	093	very quiet	6.30	1.17
	1800		350		0.253				6.17	.99
27	1000	029.11	390	2.1883	0.242				6.12	1.2
	1400		417		0.252	8.5	333	quiet (12)	6.25	1.3
	1800		468		0.199				6.15	1.24
28	1500	029.19	468	2.1962	0.217	7.5	349	quiet (13)	6.13	1.07
	1900		468		0.182				6.30	.97
29	1900	029.33	504	2.2132	0.171				6.05	1.1
	2230		468		0.156	3.4	199	very dis-	6.18	1.1
30	0300		449		0.164			turbed	6.22	1.09

[1] Wolfe - NASA/ARC
[2] Scarfe - TRW, Inc.
[3] Sonett and Colburn - NASA/ARC
[4] Webber - Univ. of N.H.

ESP = Earth-Sun Probe Angle.

Notes:
1 With two Field Direction Reversals at 1453 and 1548 UT
2 With one Field Direction Reversal at 1700 UT
3 0940 UT thru 1400 UT
4 1400 UT thru 2100 UT
5 With one Field Direction Reversal at 0353 UT
6 With one Field Direction Reversal at 1548 UT
7 With two Field Direction Reversals at 1505 and 1914 UT
8 With two Field Direction Reversals at 1856 and 1901 UT
9 With one Field Direction Reversal at 1709 UT
10 With one Field Direction Reversal at 1756 UT
11 With two Field Direction Reversals at 1212 and 1217 UT
12 With two Field Direction Reversals at 1328 and 1639 UT
13 With three Field Direction Reversals at 1440, 2017 and 2027 UT

Note: Possible Pioneer 9/10 Spiral Alignment Occurrences at various Nominal Solar Wind Velocities:

U_{H+} (km/sec)	Date (of Alignment)
300	15 February 1973
400	27 December 1972
500	09 November 1972

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For explanations of the data contained herein see "Descriptive Text" published as supplement to February 1972 "Solar-Geophysical Data" (Number 330).

NOVEMBER 1, 1972 (P = 24.53, B_o = 4.33, L_o = 285.19) MT. WILSON

Np

MAGNETOGRAM
Solid - Plus
Dotted - Minus

UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

Np

E

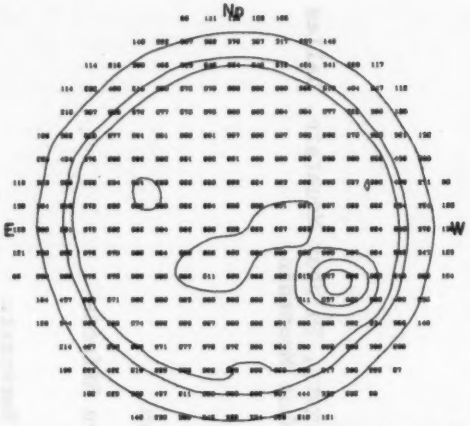
Not available at time of publication.

W

Sp

PROSPECT HILL
AFCRL

8.6 mm



Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

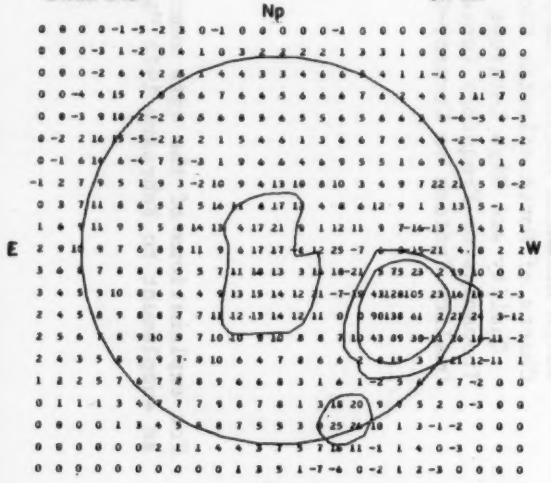
1413 UT

Contours in Intervals of 200° K

Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm

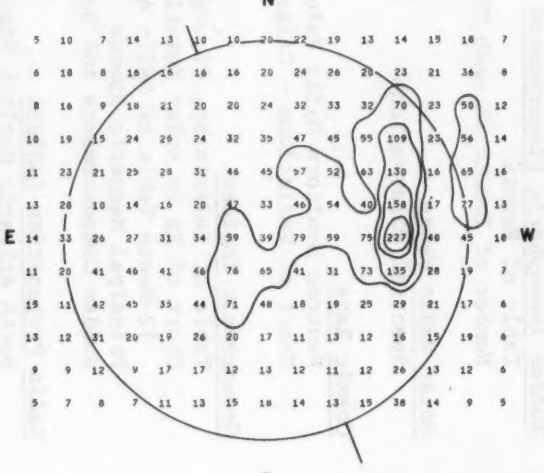


20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

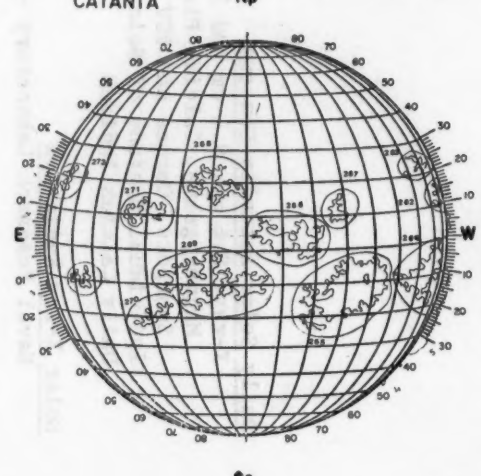


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

CATANIA

CALCIUM REPORT



POOR
64 - 9743---
65 - 14024---
66 - 4050---
68 - 2911---
69 - 7882---

1000 UT

20-21 UT

Brightness Unit 3,000° K

02-03 UT

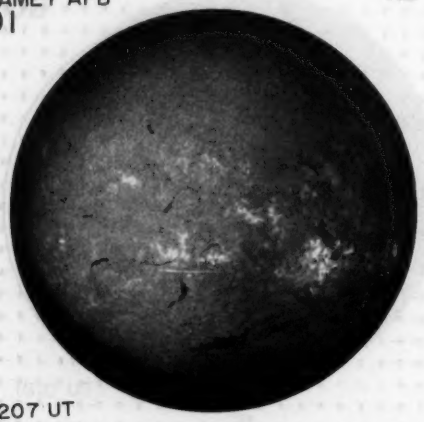
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

1000 UT

RAMEY AFB
01

Np

Hα



E

W

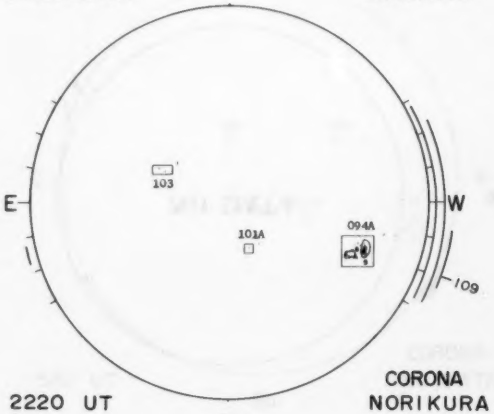
1207 UT

Sp

CULGOORA

Np

SUNSPOTS



E

W

CORONA
NORIKURA

2220 UT

Sp

NRL
OSO-7

TWO DIAMETRAL STREAKS, ALWAYS AT 90° TO SCAN DIRECTION

Np

WHITE-LIGHT
CORONA

TV SCAN DIRECTION

E

W

0454 UT

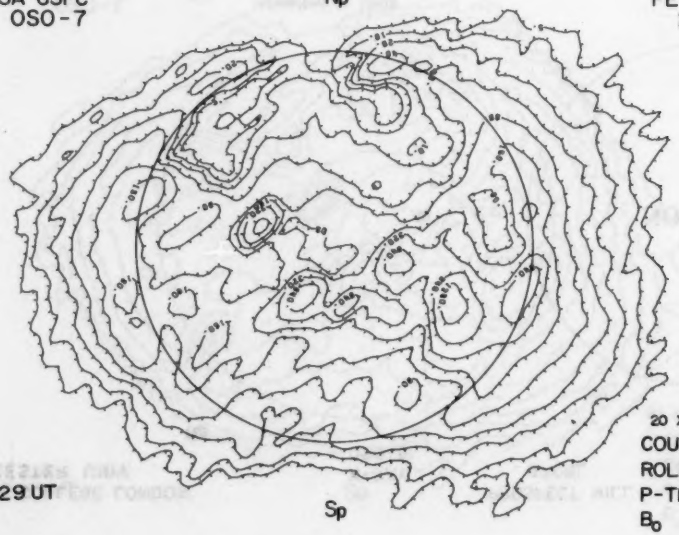
Sp

SHADOW AREA CAUSED BY OCCULTER SUPPORT

Np

NASA GSFC
OSO-7

Np



E

W

2229 UT

Sp

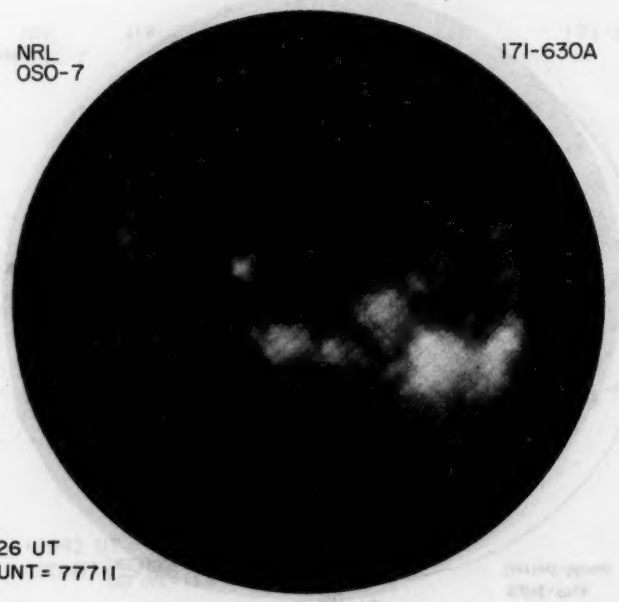
FE XV
284A

20 X 20 ARCSEC APERTURE
COUNT = 136022
ROLL = 131.3°
P-TH = 5.89
B_0 = 4.24

NRL
OSO-7

171-630A

Np



E

W

2226 UT
COUNT = 77711

Sp

23 Nov 72

NOVEMBER 2, 1972 (P = 24.36, B_o = 4.23, L_o = 272.01)

24 Nov 72

UNIV. COLLEGE LONDON
LEICESTER UNIV.
X-RAY
OSO-5

Np

E W

Sp

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL
8.6 mm

Np

E W

NO DATA

Sp

Contours in Intervals of 200° K

MT. WILSON
MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 17.2
DELTAX = 14.0

Np

E W

Sp

21.91-23.39 UT

Levels
±5
±10
±20
±40
±80

STANFORD
9.1 cm

Np

E W

Sp

20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA
21 cm

N

NO DATA

S

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT
CALCIUM REPORT

Np

W E

Sp

1715 UT

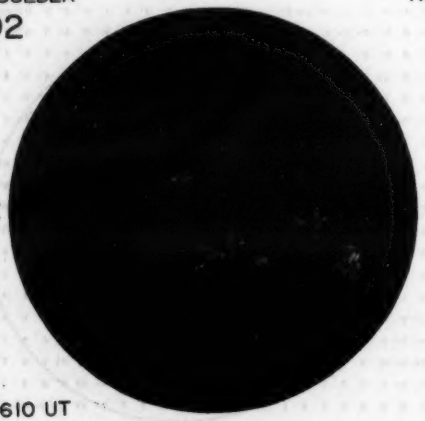
	V POOR	M
94 - 5100	3.5	
99 - 1100	2.5	
01 - 0600	2.5	
03 - 0800	3.5	

20-21 UT

02-03 UT Brightness Unit 1,700° K

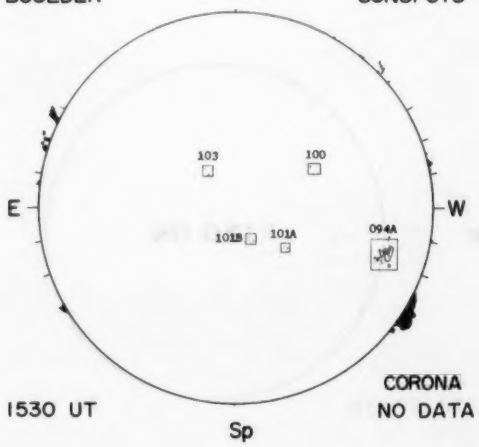
1715 UT

BOULDER
02



1610 UT

BOULDER



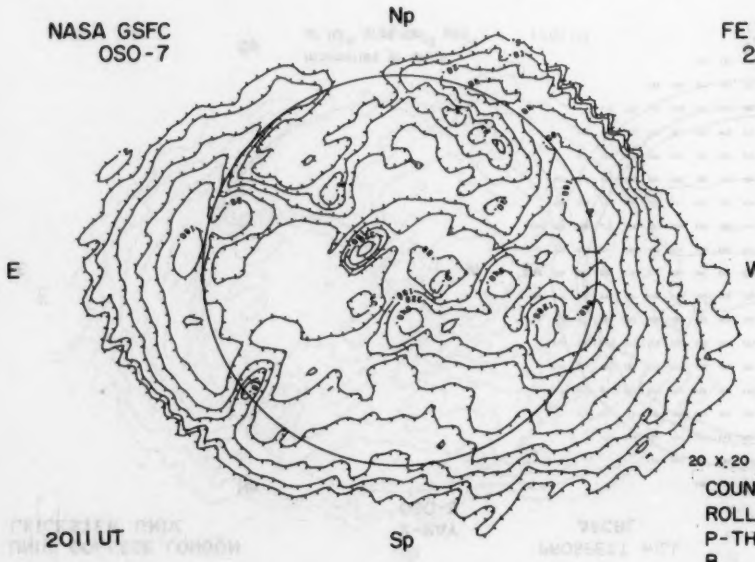
1530 UT

CORONA
NO DATA

NRL
OSO-7

0534 UT

NASA GSFC
OSO-7

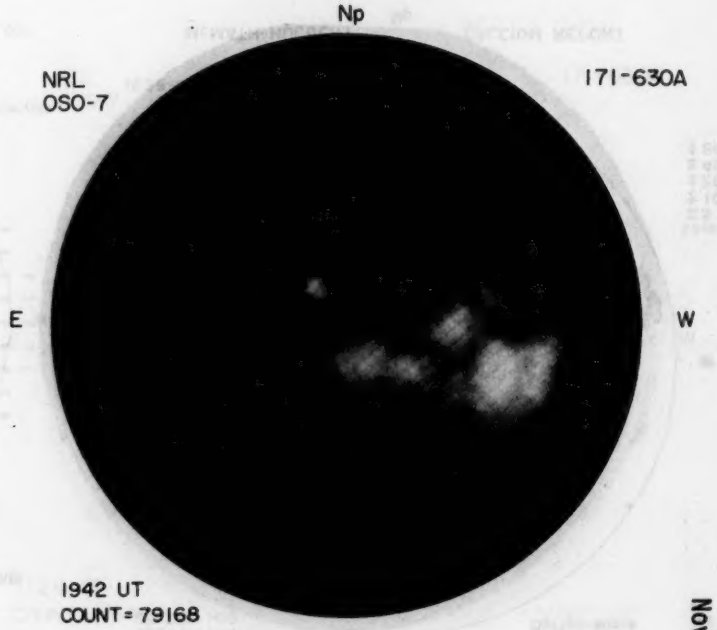


2011 UT

FE XV
284A

20 X 20 ARCSEC APERTURE
COUNT = 116503
ROLL = 131.8°
P-TH = 5.96
B_o = 4.15

NRL
OSO-7



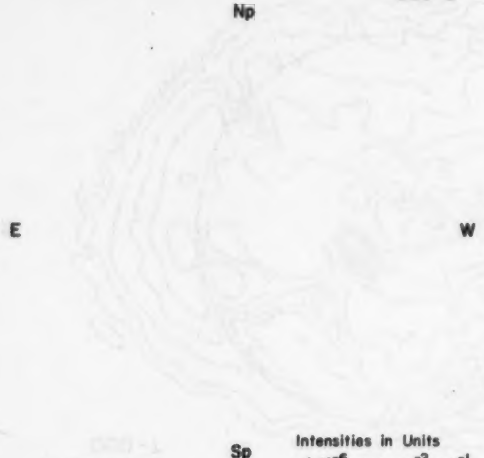
1942 UT
COUNT = 79168

25
Nov 72

NOVEMBER 3, 1972 (P = 24.18, B_o = 4.12, L_o = 258.82)

26 Nov 72

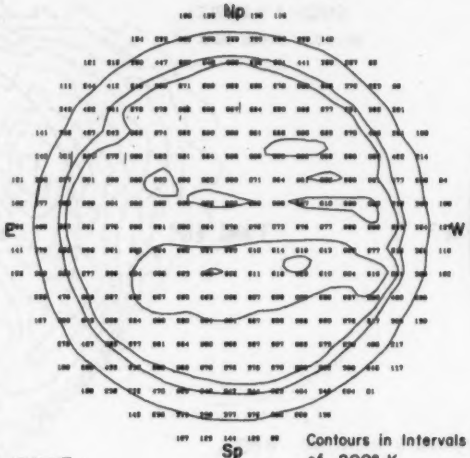
UNIV. COLLEGE LONDON
LEICESTER UNIV.
X-RAY
OSO-5



Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

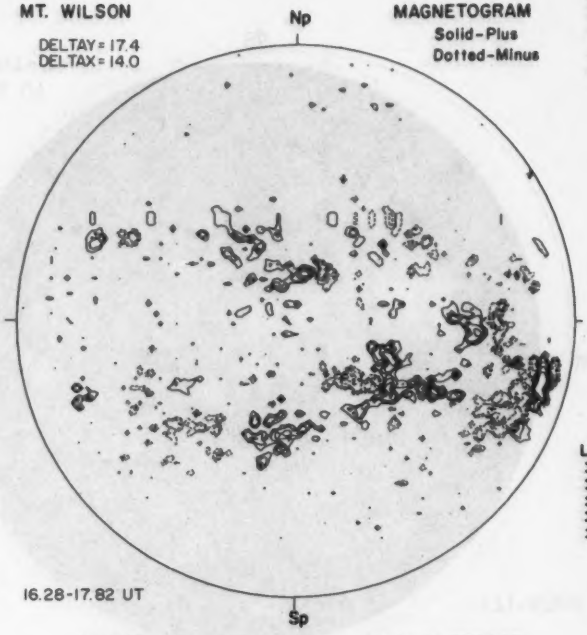
1741 UT

PROSPECT HILL
AFCRL
8.6 mm



Contours in Intervals of 200° K

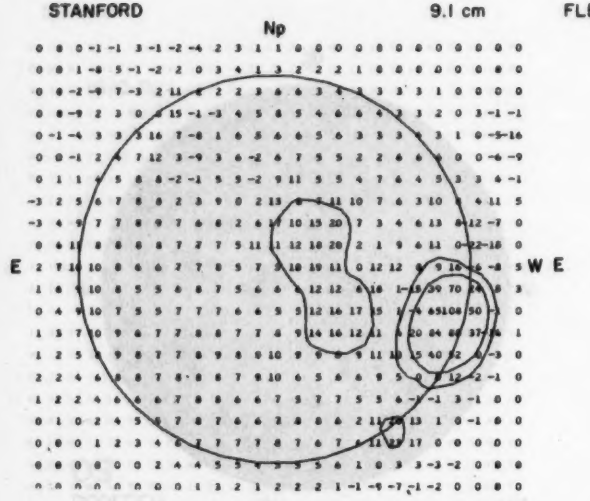
MT. WILSON
MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 17.4
DELTAX = 14.0



Levels
±5
±10
±20
±40
±80

16.28-17.82 UT

STANFORD
9.1 cm



Brightness Unit 5,000° K

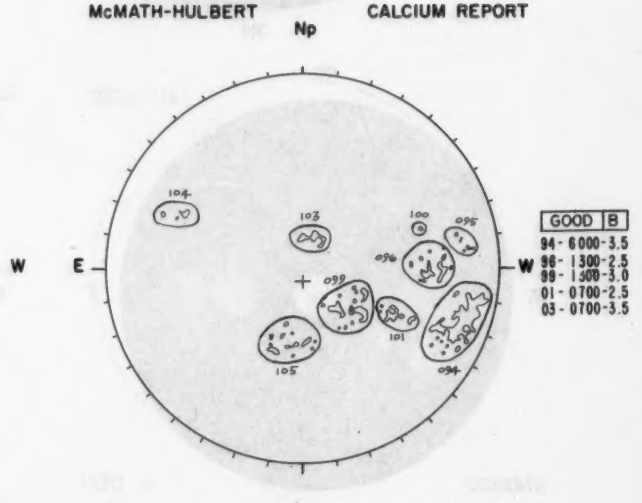
20-21 UT

FLEURS, AUSTRALIA
21 cm

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

02-03 UT

McMATH-HULBERT
CALCIUM REPORT



1335 UT

20-21 UT

Brightness Unit 5,000° K

02-03 UT

Resolution 3 Minutes of Arc

Brightness Unit 1,700° K

1335 UT

BOULDER
03

Np

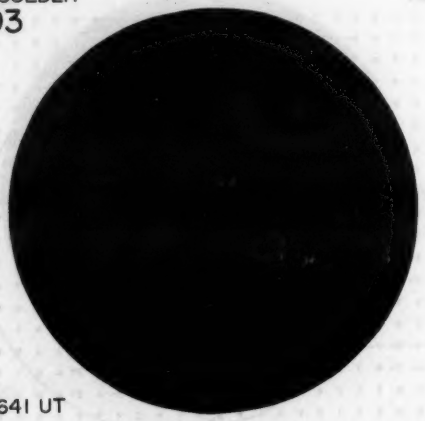
Hα

E

W

1641 UT

Sp



BOULDER

Np

SUNSPOTS

E

W

099A

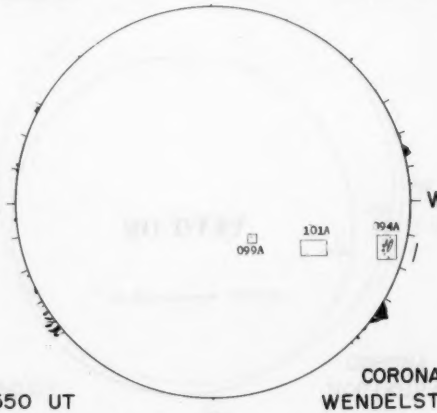
101A

194A

CORONA
WENDELSTEIN

1550 UT

Sp



NRL
OSO-7

Np

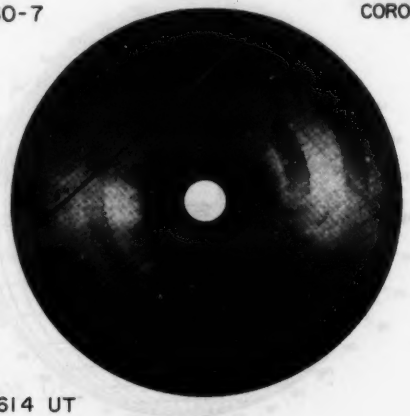
WHITE-LIGHT
CORONA

E

W

0614 UT

Sp



NASA GSFC
OSO-7

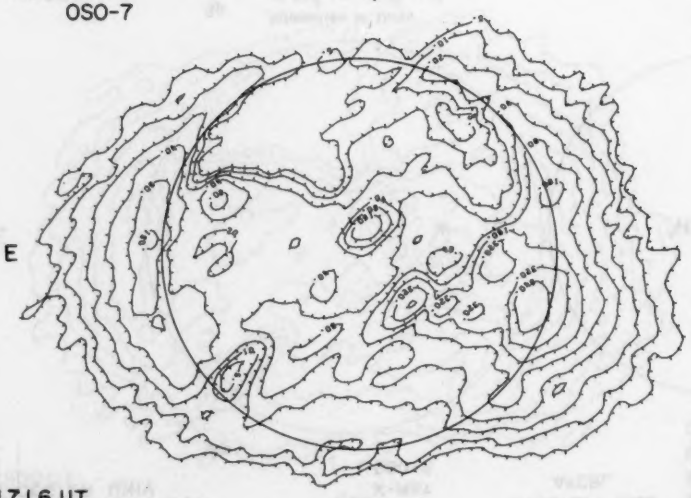
Np

E

W

1716 UT

Sp



FE XV
284A

COUNT = 67819
ROLL = 131.9°
P-TH = 6.02
B_0 = 4.05

NRL
OSO-7

Np

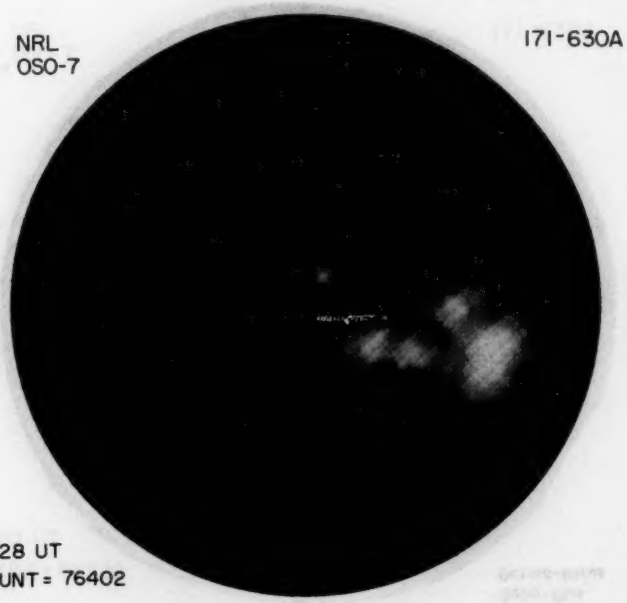
171-630A

E

W

1728 UT
COUNT = 76402

Sp

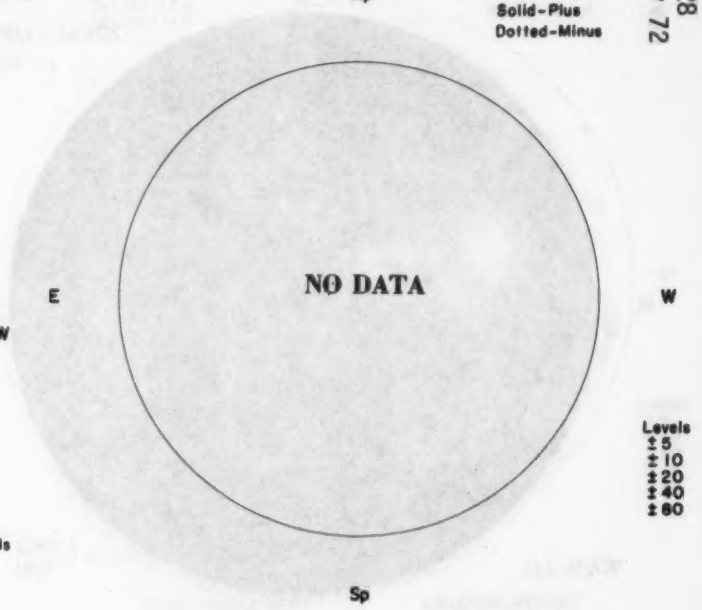


27
Nov 72

NOVEMBER 4, 1972 (P = 23.99, B_o = 4.02, L_o = 245.64)

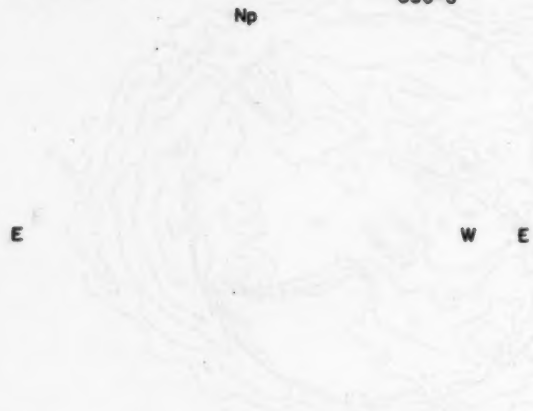
MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus



UNIV. COLLEGE LONDON
LEICESTER UNIV.

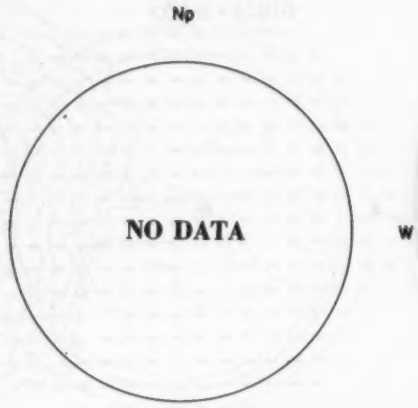
X-RAY
OSO-5



Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

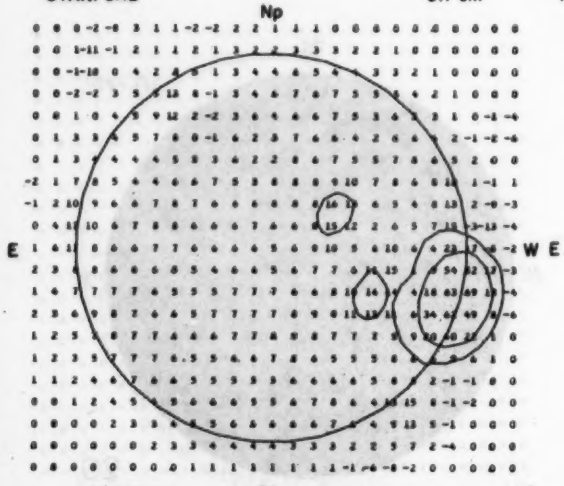
8.6 mm



Contours in Intervals of 200° K

STANFORD

9.1 cm



Brightness Unit 5,000° K
20-21 UT

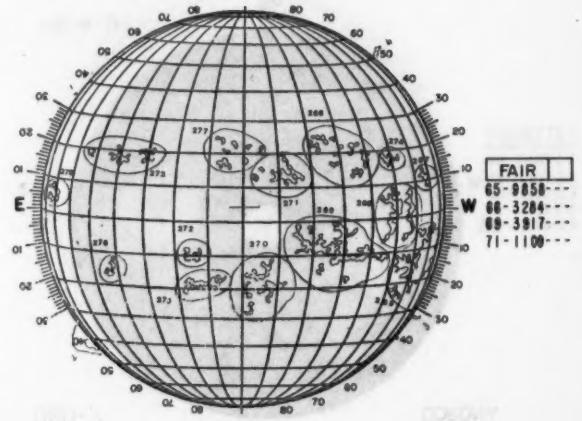
FLEURS, AUSTRALIA

21 cm

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K
02-03 UT

CALCIUM REPORT

CATANIA



1010 UT

WHITE-LIGHT

20-21 UT

02-03 UT

Resolution 5 Minutes of Arc
Brightness Unit 1,700° K

1010 UT

BOULDER
04

Np

Hα

E

W

Sp

2051 UT

BOULDER

Np

SUNSPOTS

E

W

099B

094A

101A

No Prominence Drawing

CORONA
NORIKURA

1550 UT

Sp

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

1003 UT

Sp

NASA GSFC
OSO-7

Np

FE XV
284A

E

W

1459 UT

Sp

COUNT = 66457
ROLL = 131.4°
P-TH = 6.09
B_o = 3.96

Np

NRL
OSO-7

171-630A

E

W

1520 UT
COUNT = 69820

Sp

29
Nov 72

NOVEMBER 5, 1972 (P = 23.79, B_o = 3.91, L_o = 232.45)

UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

Np

E W

Sp

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

8.6 mm

Np

E W

NO DATA

Sp

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid - Plus
Dotted - Minus

Np

E W

Sp

16.07-17.55 UT

Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm

Np

E W

Sp

20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

N

NO DATA

S

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

CALCIUM REPORT

CATANIA

Np

E W

Sp

1025 UT

FAIR
66 - 3533 ---
69 - 4130 ---
71 - 1213 ---

20-21 UT

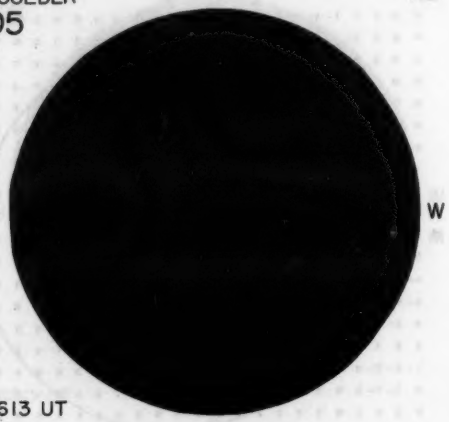
02-03 UT Brightness Unit 1,700° K

1025 UT

BOULDER
05

Np

Hα



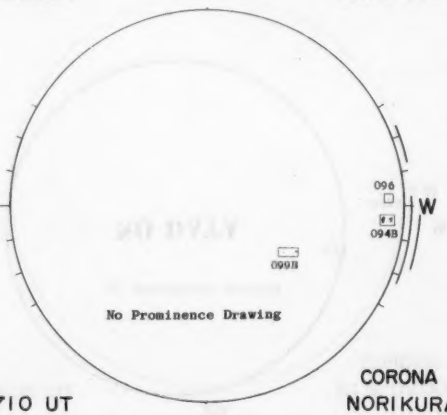
1613 UT

Sp

BOULDER

Np

SUNSPOTS



1710 UT

Sp

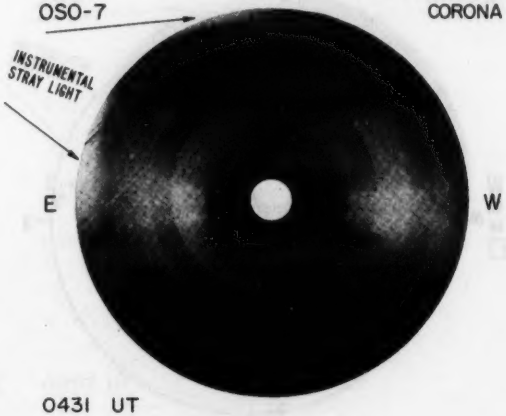
CORONA
NORIKURA

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

INSTRUMENTAL
STRAY LIGHT



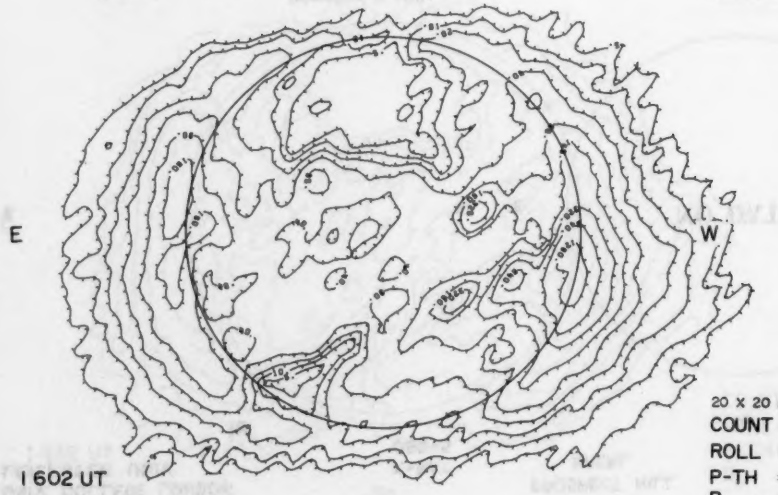
0431 UT

Sp

Np

NASA GSFC
OSO-7

Np



1602 UT

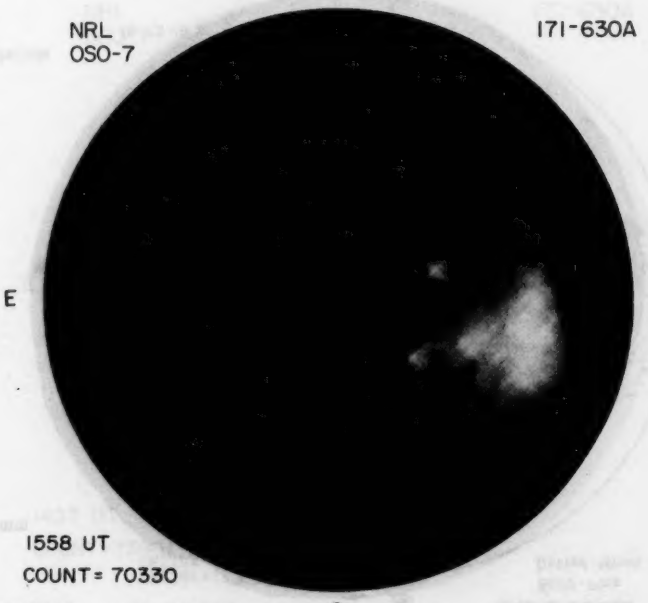
Sp

FE XV
284A

20 X 20 ARCSEC APERTURE
COUNT = 107108
ROLL = 128.6°
P-TH = 6.16
B_0 = 3.85

NRL
OSO-7

171-630A



1558 UT
COUNT = 70330

Sp

31
Nov 72

NOVEMBER 6, 1972 (P= 23.59, B_o= 3.80, L_o= 219.27)

UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

Np

E W

Sp

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

8.6 mm

Np

E W

NO DATA

Sp

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.3
DELTAX = 14.0

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

E W

Sp

16.73-18.29 UT

Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm

Np

E W

Sp

Brightness Unit 5,000° K

20-21 UT

FLEURS, AUSTRALIA

21 cm

N

NO DATA

W E

S

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

02-03 UT

McMATH-HULBERT

CALCIUM REPORT

Np

W E

Sp

1410 UT

POOR	D
99 - 1500	2.5
03 - 0500	2.5
06 - 2500	3.5

20-21 UT

02-03 UT

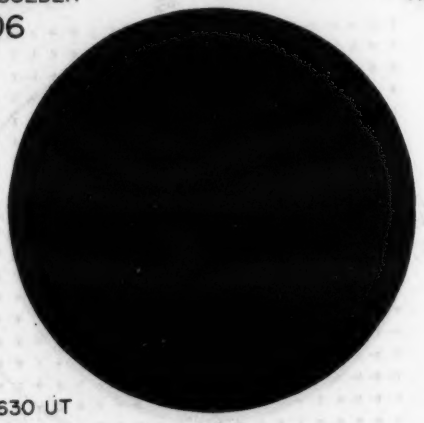
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

1410 UT

BOULDER
06

Np

Hα



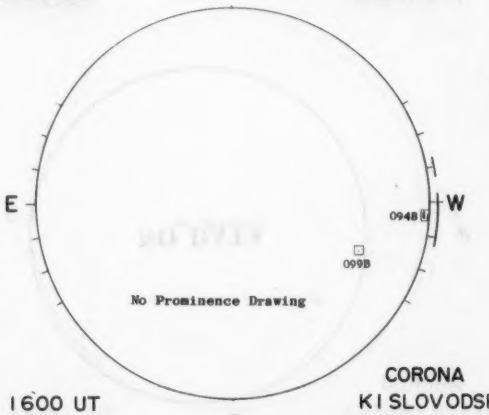
Sp

1630 UT

BOULDER

Np

SUNSPOTS



CORONA
KISLOVODSK

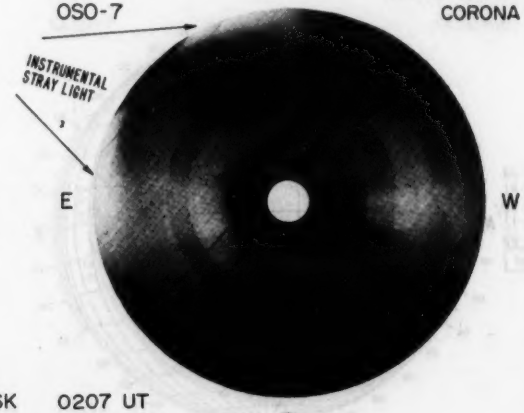
1600 UT

Sp

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

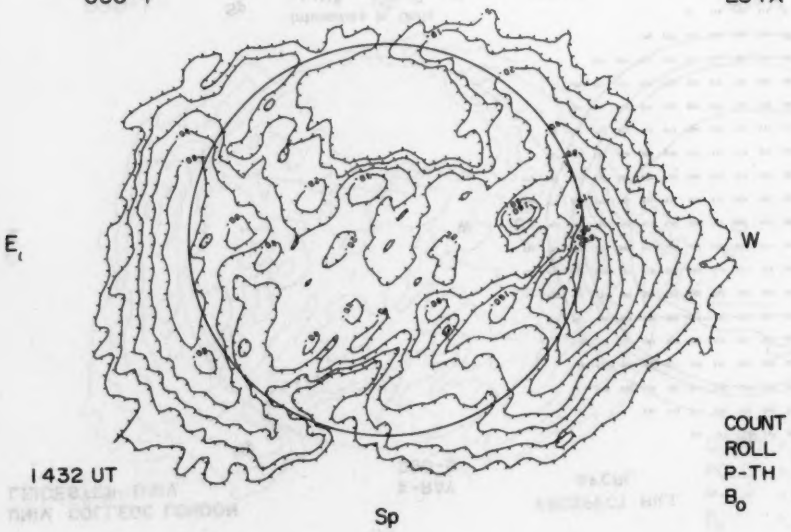


0207 UT

Sp

NASA GSFC
OSO-7

Np



1432 UT

Sp

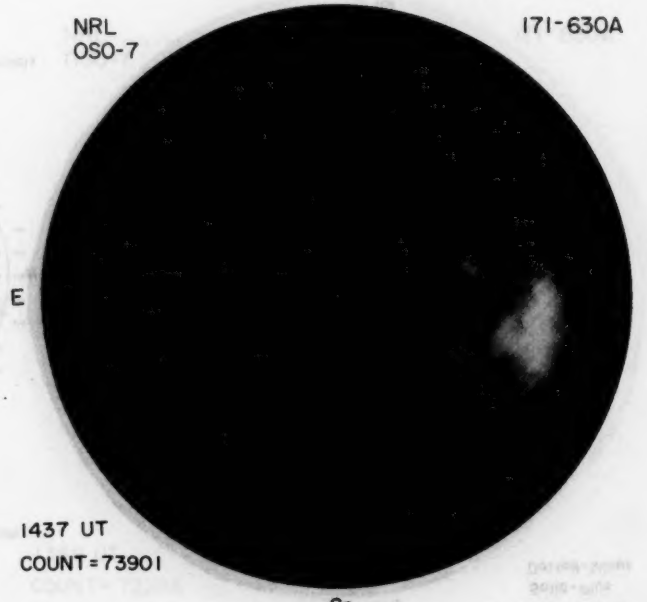
FE XV
284A

COUNT = 55020
ROLL = 126.0°
P-TH = 6.22
B_o = 3.75

Np

NRL
OSO-7

171-630A



1437 UT
COUNT=73901

Sp

33
Nov 72

NOVEMBER 7, 1972 (P= 23.38, B_o= 3.69, L_o= 206.08)

MT. WILSON

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

NO DATA

E W

Sp

Levels
±5
±10
±20
±40
±80

UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

Np

E W

Sp

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

8.6 mm

Np

E W

Sp

1339 UT

Contours in Intervals of 200° K

STANFORD

9.1 cm

Np

E W

Sp

20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

N

NO DATA

W E

S

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

CALCIUM REPORT

CATANIA

Np

W E

Sp

0830 UT

POOR	
69 - 3583	---
71 - 1090	---
73 - 1144	---
78 - 1740	---
82 - 498	---

20-21 UT
Brightness Unit 5,000° K

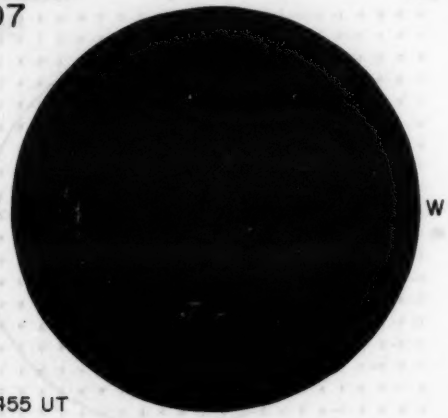
02-03 UT
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

0830 UT

BOULDER
07

Np

Hα



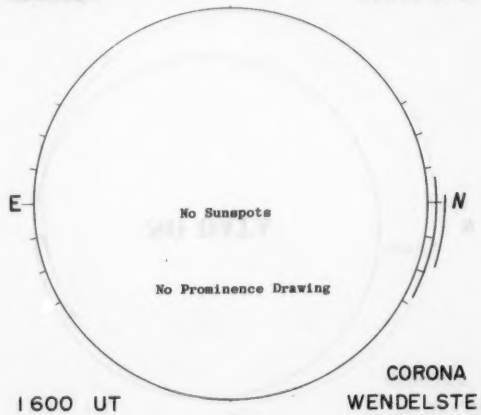
1455 UT

Sp

BOULDER

Np

SUNSPOTS



1600 UT

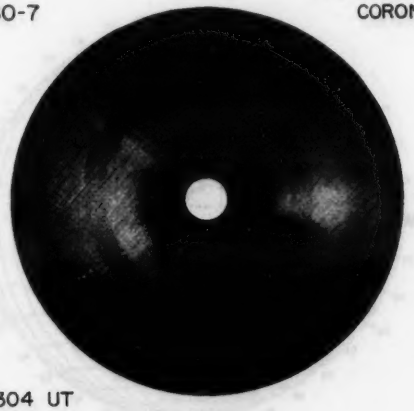
Sp

CORONA
WENDELSTEIN

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

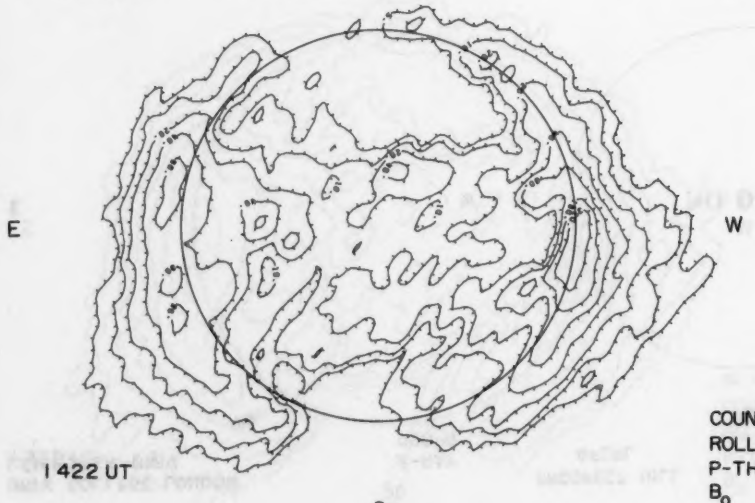


0304 UT

Sp

NASA GSFC
OSO-7

Np



1422 UT

Sp

FE XV
284A

COUNT = 34144
ROLL = 121.5°
P-TH = 6.28
B_0 = 3.64

Np

NRL
OSO-7

171-630A

1346 UT
COUNT= 72334

Sp

NOVEMBER 8, 1972 (P= 23.16, B_o= 3.59, L_o= 192.90)

UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

Np

E W

Sp

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

8.6 mm

Np

E W

NO DATA

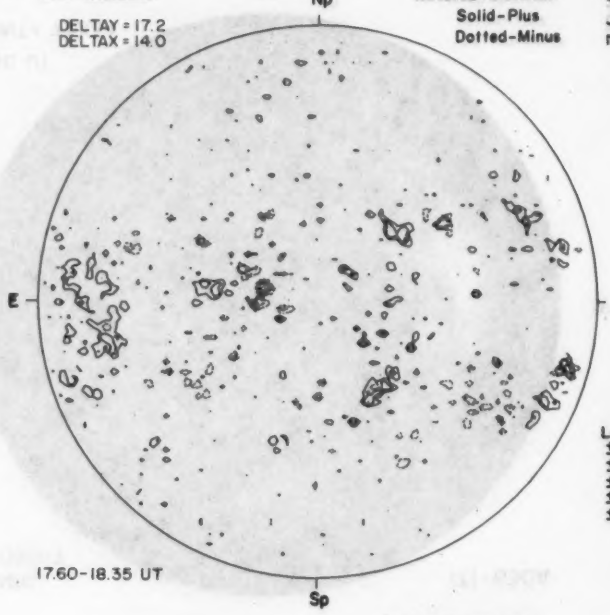
Sp

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.2
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus



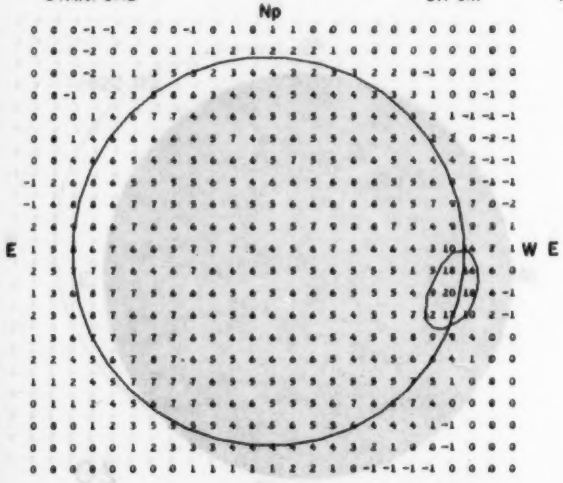
Levels
±5
±10
±20
±40
±80

17.60-18.35 UT

STANFORD

9.1 cm

Np



Sp

Brightness Unit 5,000° K

20-21 UT

FLEURS, AUSTRALIA

21 cm

N

NO DATA

S

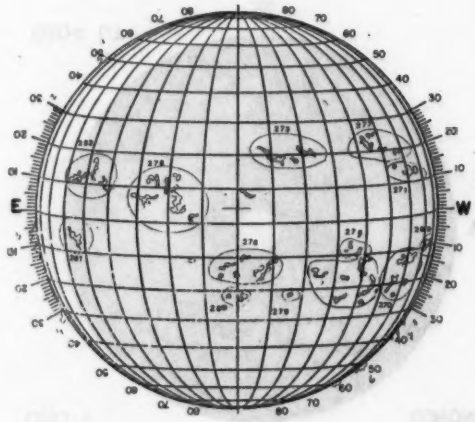
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

02-03 UT

CALCIUM REPORT

CATANIA

Np



FAIR
69 - 540 ---
71 - 699 ---
73 - 847 ---
78 - 1707 ---

0825 UT

20-21 UT

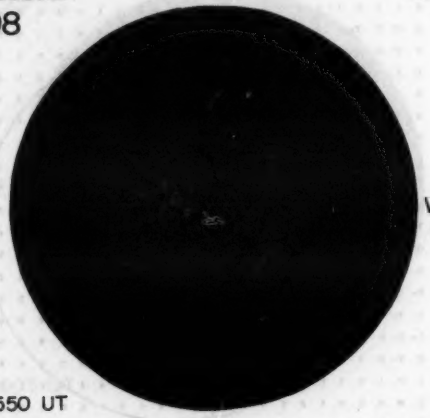
02-03 UT Brightness Unit 1,700° K

0825 UT

BOULDER
08

Np

Hα



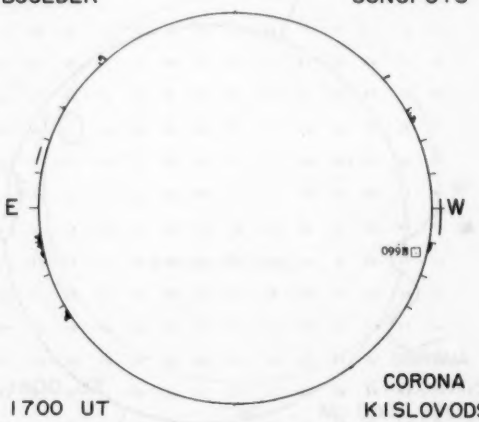
1550 UT

Sp

BOULDER

Np

SUNSPOTS



1700 UT

CORONA
KISLOVODSK

Sp

NRL
OSO-7

Np

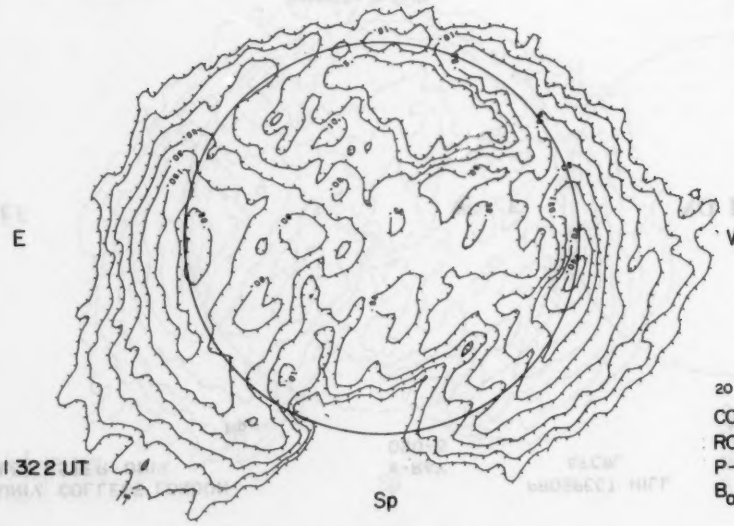
WHITE-LIGHT
CORONA

0836 UT

Sp

NASA GSFC
OSO-7

Np



1322 UT

Sp

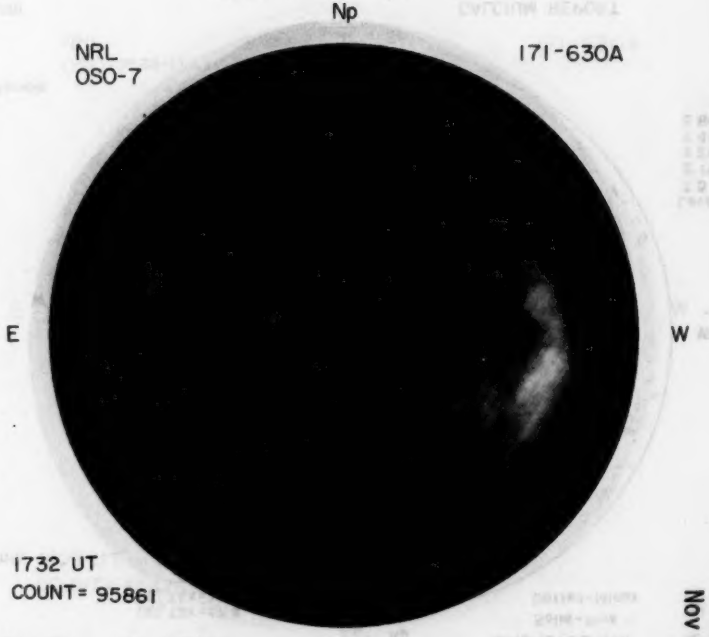
FE XV
284A

20 X 20 ARCSEC APERTURE
COUNT = 58449
ROLL = 117.5°
P-TH = 6.34
B_0 = 3.53

NRL
OSO-7

Np

171-630A



1732 UT
COUNT= 95861

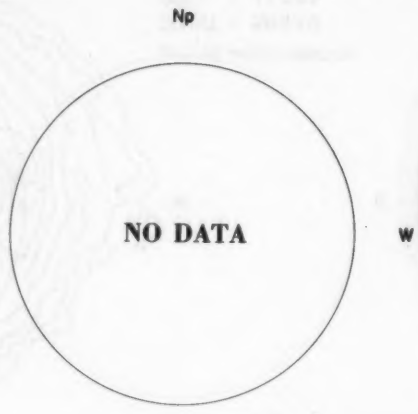
37
Nov 72

NOVEMBER 9, 1972 (P= 22.93, B_o= 3.47, L_o= 179.72)

UNIV. COLLEGE LONDON
LEICESTER UNIV.
X-RAY
OSO-5

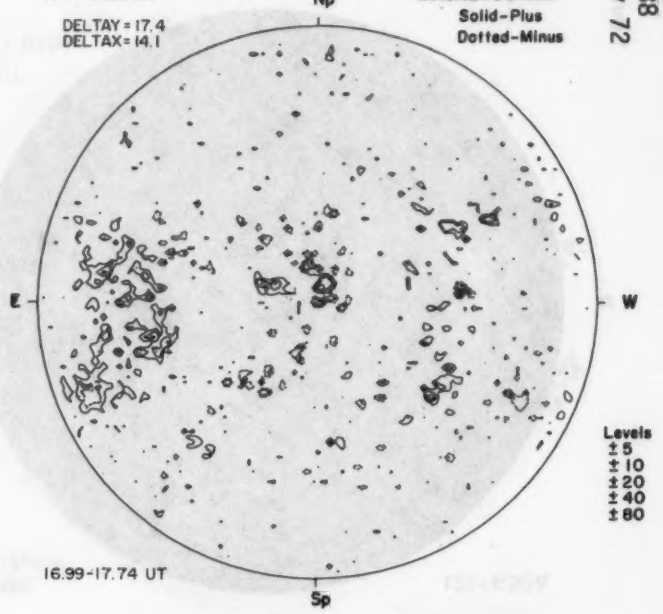
Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL
8.6 mm



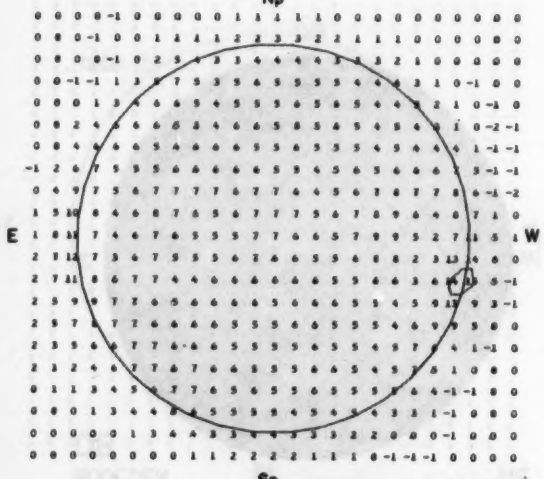
Contours in Intervals of 200° K

MT. WILSON
DELTAY = 17.4
DELTAX = 14.1
MAGNETOGRAM
Solid - Plus
Dotted - Minus



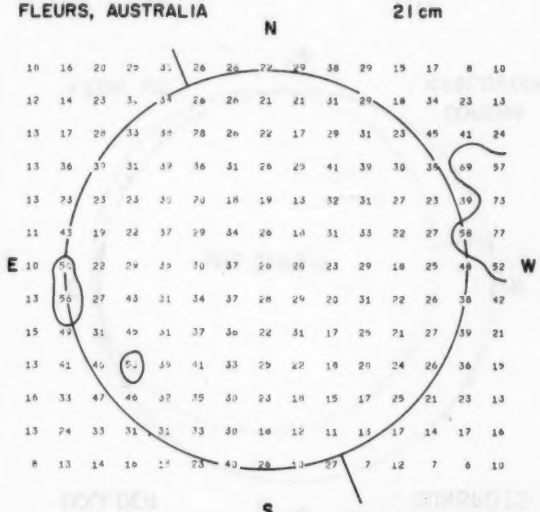
16.99-17.74 UT

STANFORD
9.1 cm



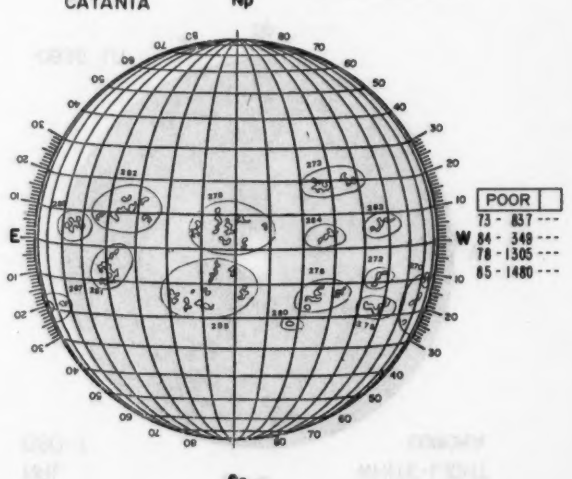
Brightness Unit 5,000° K
20-21 UT

FLEURS, AUSTRALIA
21 cm



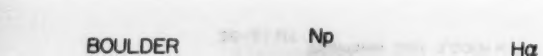
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K
02-03 UT

CALCIUM REPORT
CATANIA

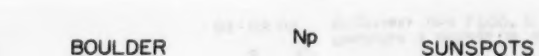


0930 UT

BOULDER
Hα



BOULDER



SUNSPOTS
NRI

WHITE - LIGHT

20-21 UT
Brightness Unit 5,000° K

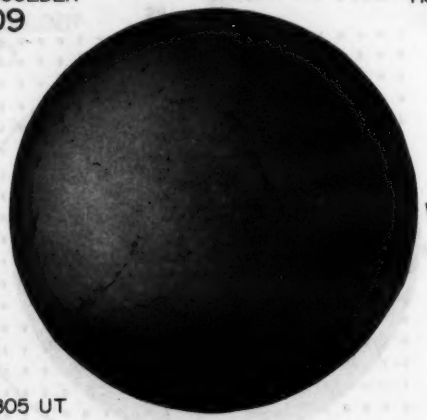
02-03 UT
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

0930 UT

BOULDER
09

Np

Hα



E

W

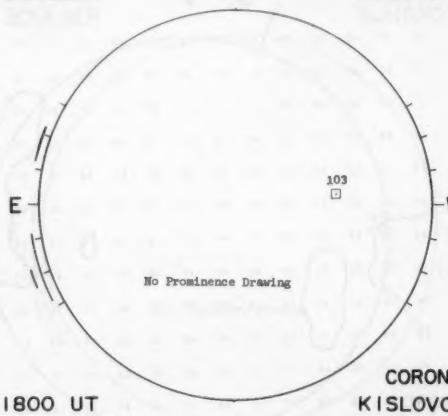
1805 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

1800 UT

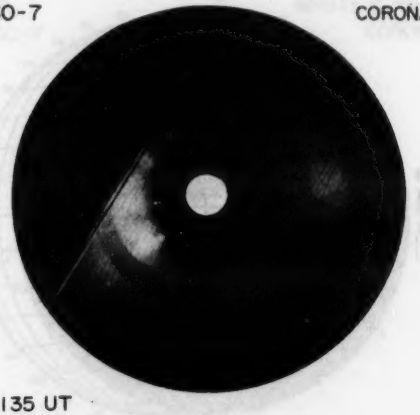
Sp

CORONA
KISLOVODSK
NO DATA 255°-335°

NRL
OSO-7

Np

WHITE-LIGHT
CORONA



E

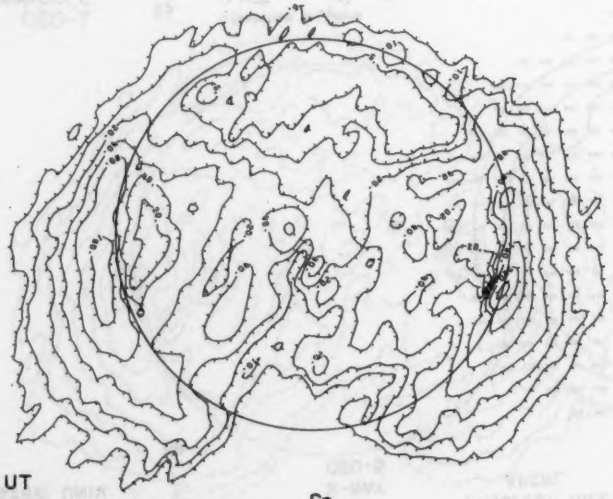
W

0135 UT

Sp

NASA GSFC
OSO-7

Np



E

W

1412 UT

Sp

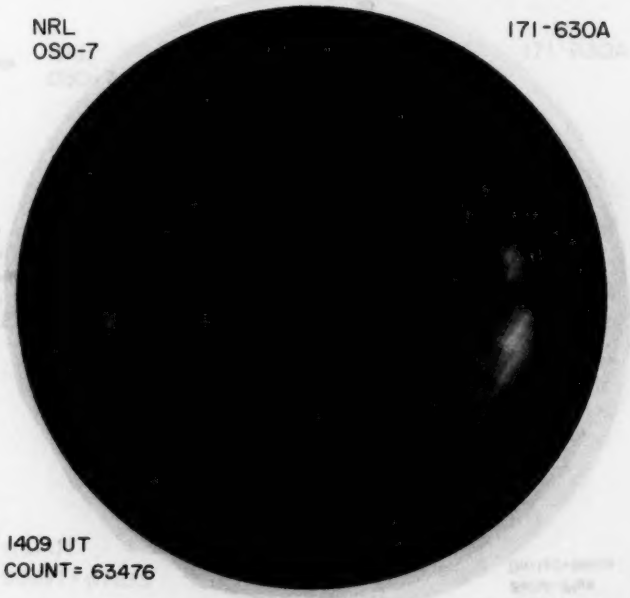
FE XV
284 A

COUNT = 36590
ROLL = 115.5°
P-TH = 6.40
B_0 = 3.42

Np

NRL
OSO-7

171-630A



E

W

1409 UT
COUNT= 63476

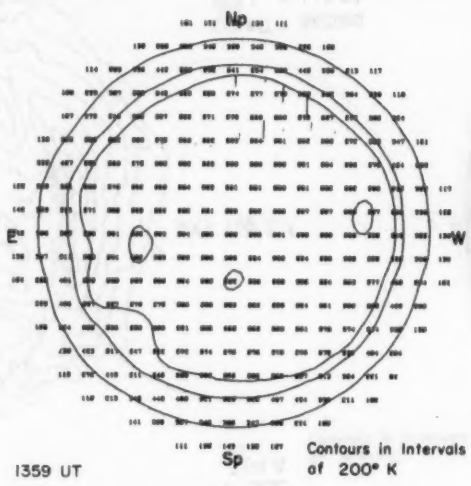
Sp

NOVEMBER 10, 1972 (P= 22.70, B_o= 3.36, L_o= 166.53) MT. WILSON

UNIV. COLLEGE LONDON
LEICESTER UNIV.
X-RAY
OSO-5

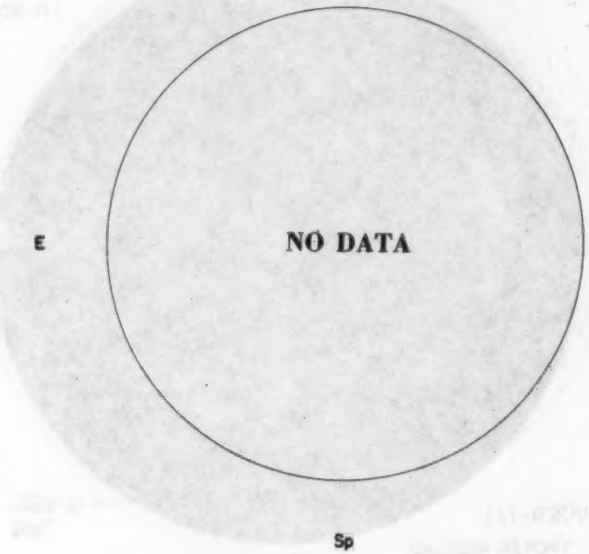
Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL
8.6 mm



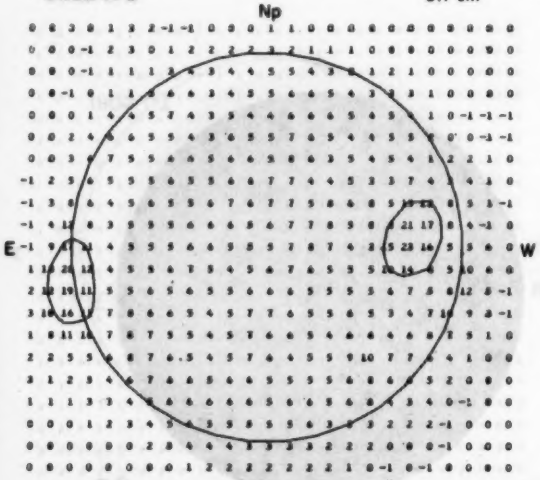
1359 UT
Contours in Intervals of 200° K

Np
MAGNETOGRAM
Solid-Plus
Dotted-Minus



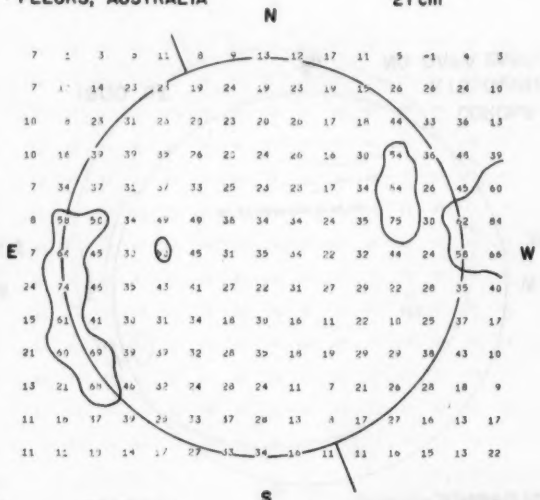
Levels
±5
±10
±20
±40
±80

STANFORD
9.1 cm



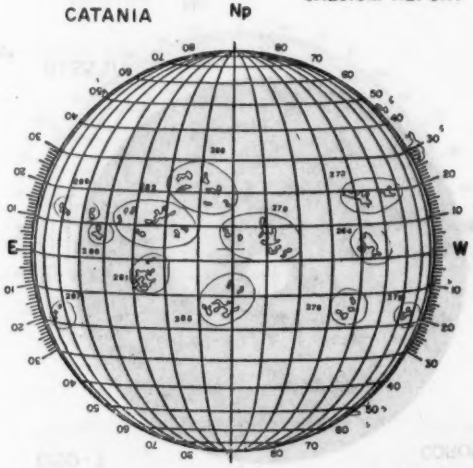
20-21 UT
Brightness Unit 5,000° K

FLEURS, AUSTRALIA
21 cm



02-03 UT
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

CALCIUM REPORT
CATANIA



FAIR
73 - 1117 ---
84 - 989 ---
78 - 1123 ---
65 - 910 ---

0935 UT

20-21 UT
Brightness Unit 5,000° K

02-03 UT
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

0935 UT

BOULDER
10

Np

Hα

E

W

1706 UT

Sp

BOULDER

Np

SUNSPOTS

E

103

W

109

No Prominence Drawing

1700 UT

CORONA
PIC-DU-MIDI

Sp

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

0826 UT

Sp

NASA GSFC
OSO-7

Np

E

W

1135 UT

Sp

FE XV
284A

COUNT= 42859
ROLL = 11.05°
P-TH = 6.46
B_o = 3.32

NRL
OSO-7

Np

171-630A

E

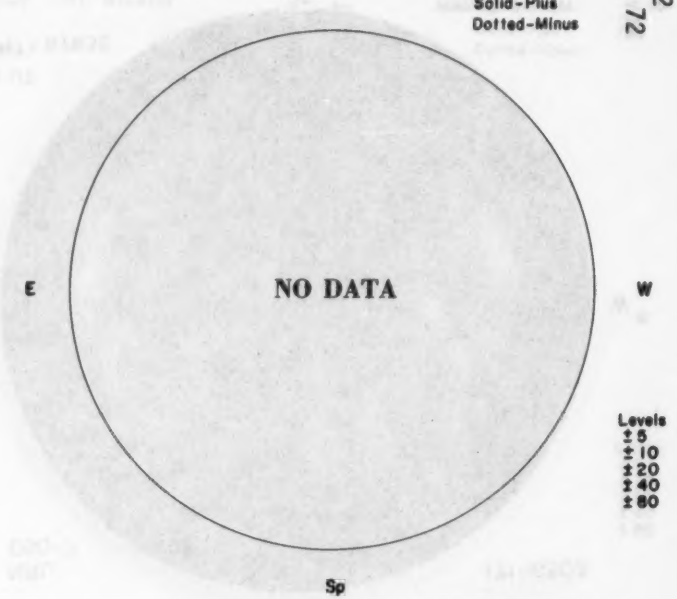
W

1131 UT
COUNT= 67635

Sp

NOVEMBER 11, 1972 (P = 22.46, B_o = 3.25, L_o = 153.35) MT. WILSON

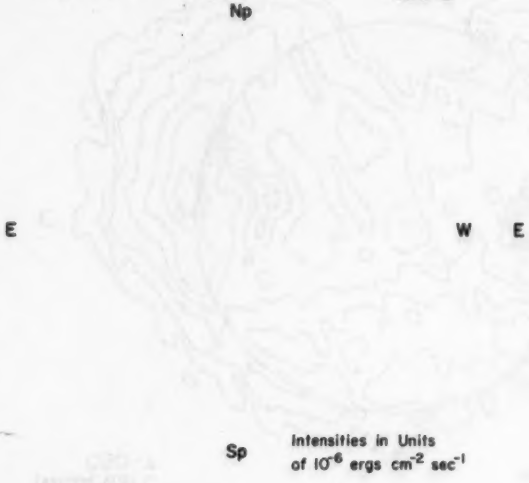
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

UNIV. COLLEGE LONDON
LEICESTER UNIV.

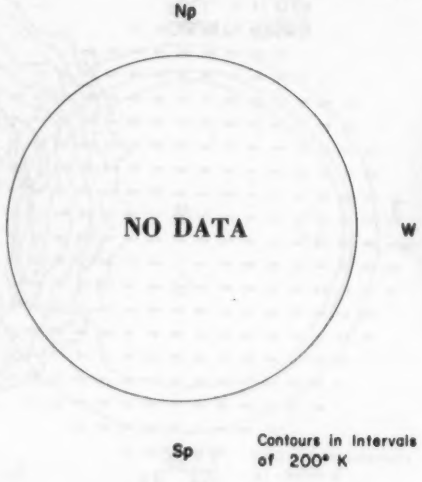
X-RAY
OSO-5



Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

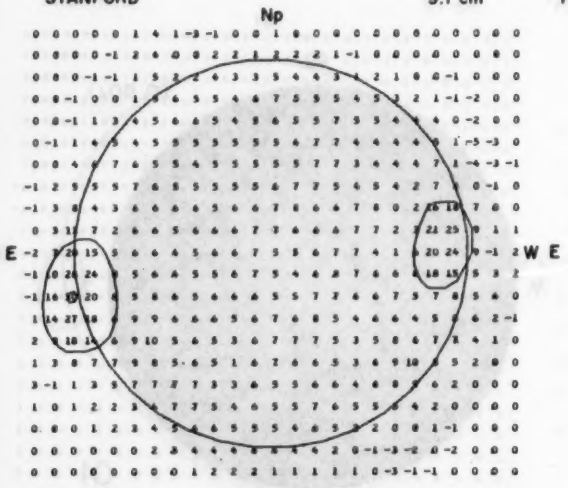
8.6 mm



Contours in Intervals of 200° K

STANFORD

9.1 cm



20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

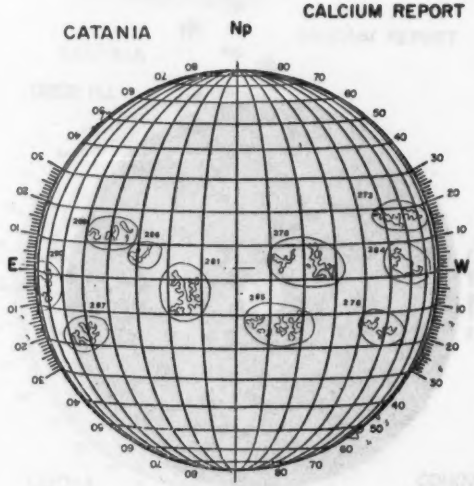
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

CALCIUM REPORT

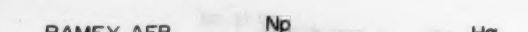
CATANIA



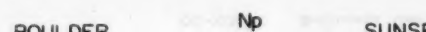
0820 UT

FAIR
73-1903---
84-2170---
90-3456---

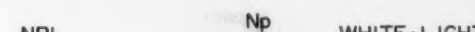
RAMEY AFB



BOULDER



SUNSPOTS

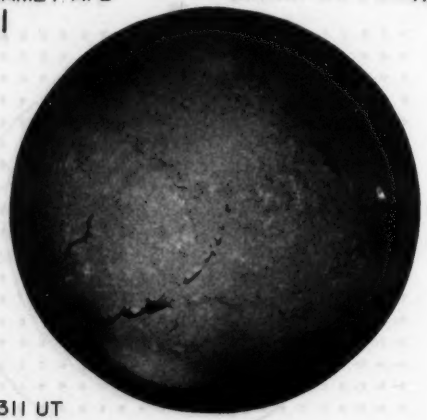


WHITE-LIGHT

RAMEY AFB
II

Np

Hα



E W

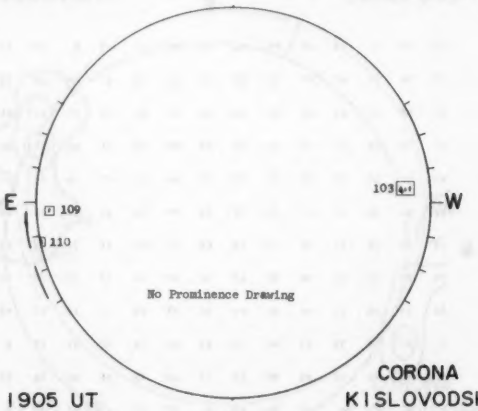
Sp

1311 UT

BOULDER

Np

SUNSPOTS



CORONA
KISLOVODSK

1905 UT

Sp

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

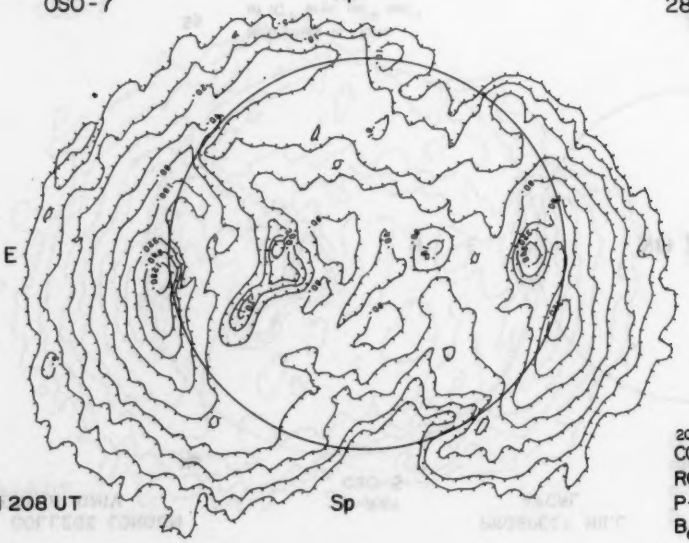
E W

0734 UT

Sp

NASA GSFC
OSO-7

Np



E W

1208 UT

Sp

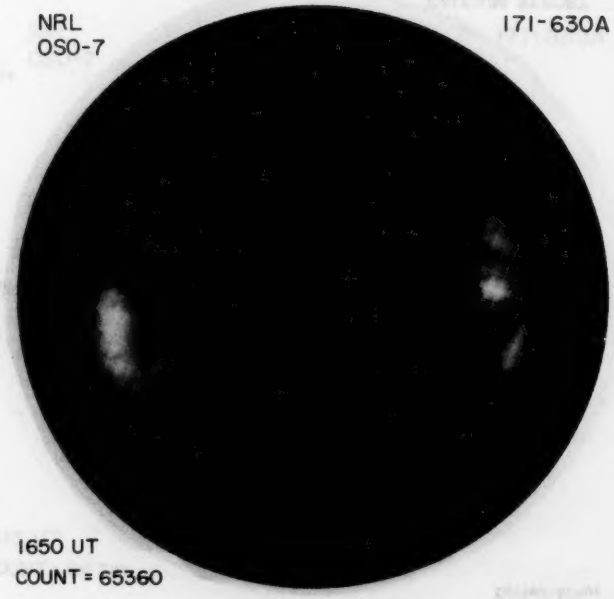
FE XV
284A

20 X 20 ARCSEC APERTURE
COUNT = 83098
ROLL = 107.7°
P-TH = 6.51
B_o = 3.20

Np

NRL
OSO-7

171-630A



E W

1650 UT
COUNT = 65360

Sp

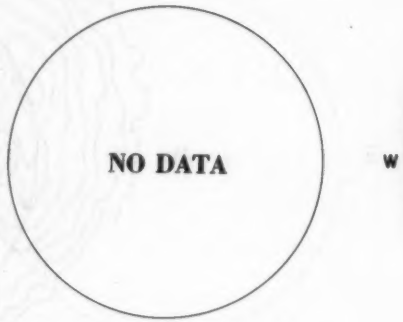
NOVEMBER 12, 1972 (P= 22.21, B_o = 3.13, L_o = 140.17)

UNIV. COLLEGE LONDON
LEICESTER UNIV.
X-RAY
OSO-5

Sp

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL
8.6 mm

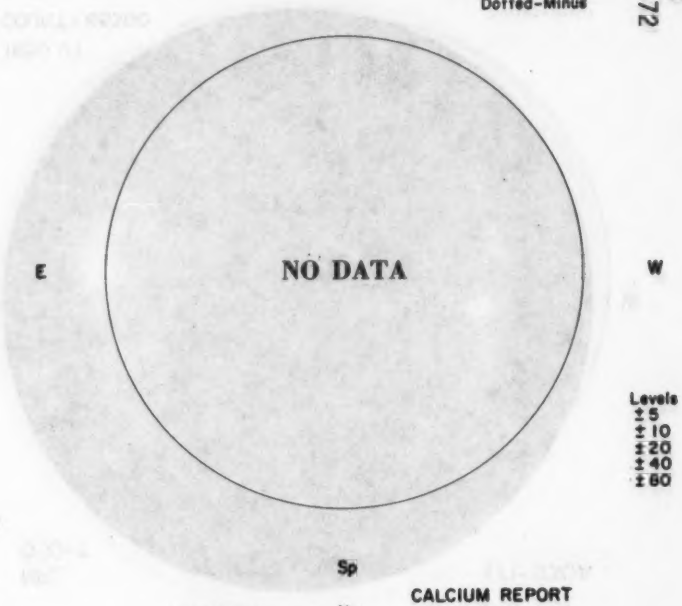


Sp

Contours in Intervals of 200° K

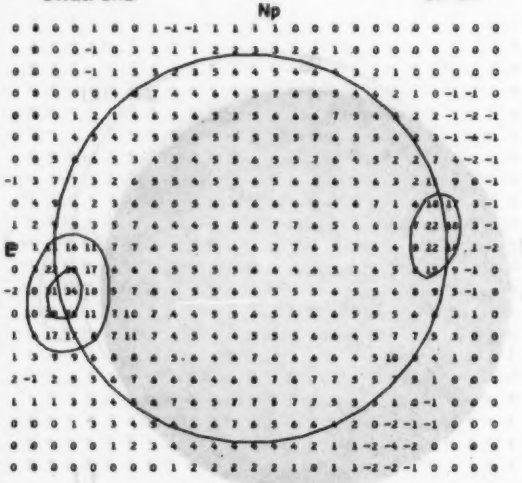
MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus



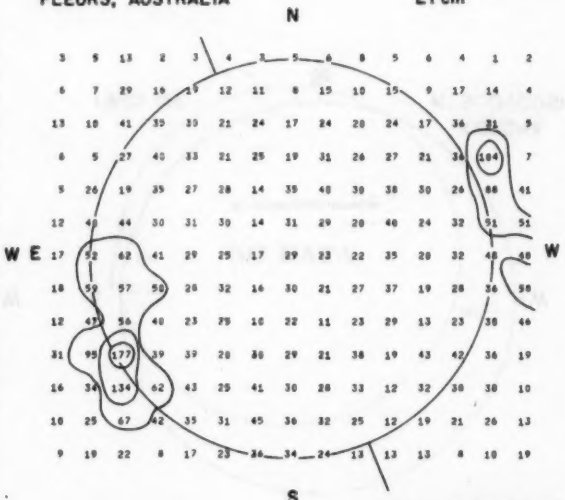
Levels
±5
±10
±20
±40
±60

STANFORD
9.1 cm



Brightness Unit 5,000° K
20-21 UT

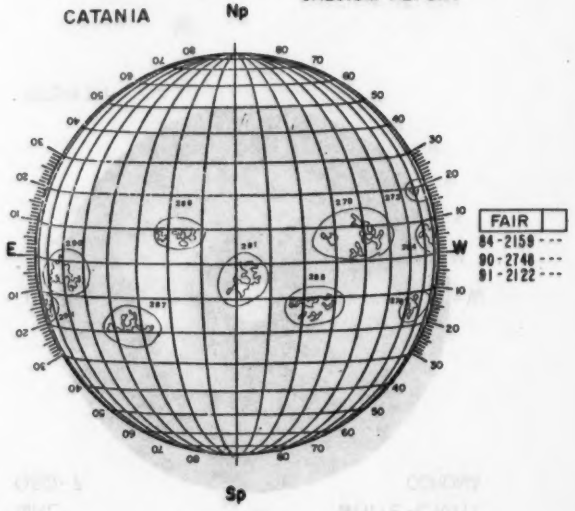
FLEURS, AUSTRALIA
21 cm



Resolution 3 Minutes of Arc
Brightness Unit 1,700° K
02-03 UT

CALCIUM REPORT

CATANIA



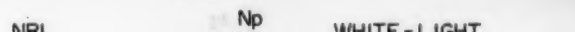
1000 UT

RAMEY AFB

Hα

CULGOORA

SUNSPOTS
NRL

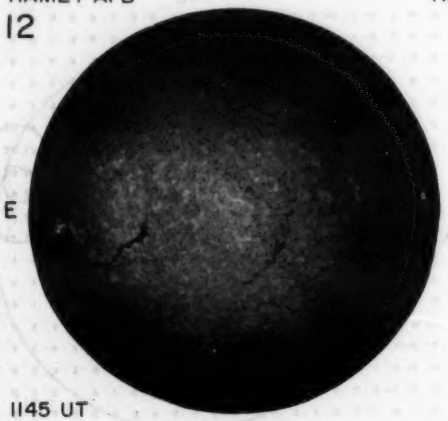


WHITE-LIGHT

RAMEY AFB
12

Np

Hα



E

W

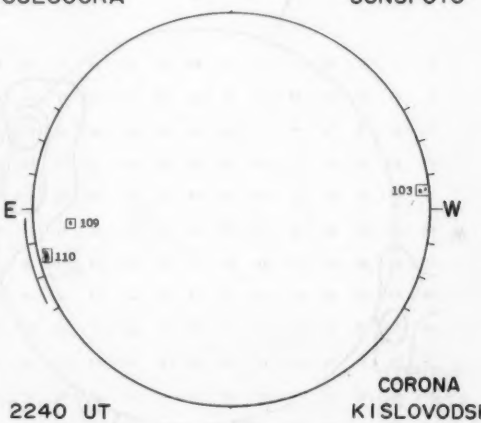
1145 UT

Sp

CULGOORA

Np

SUNSPOTS



E

W

2240 UT

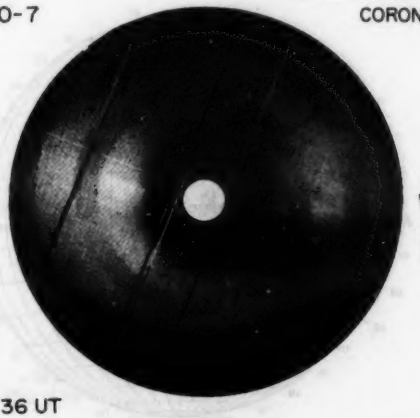
Sp

CORONA
KISLOVODSK

NRL
OSO-7

Np

WHITE-LIGHT
CORONA



E

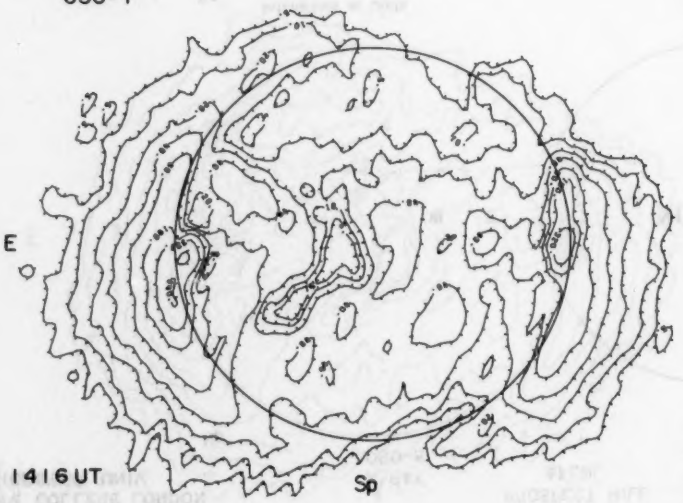
W

0136 UT

Sp

NASA GSFC
OSO-7

Np



E

W

1416 UT

Sp

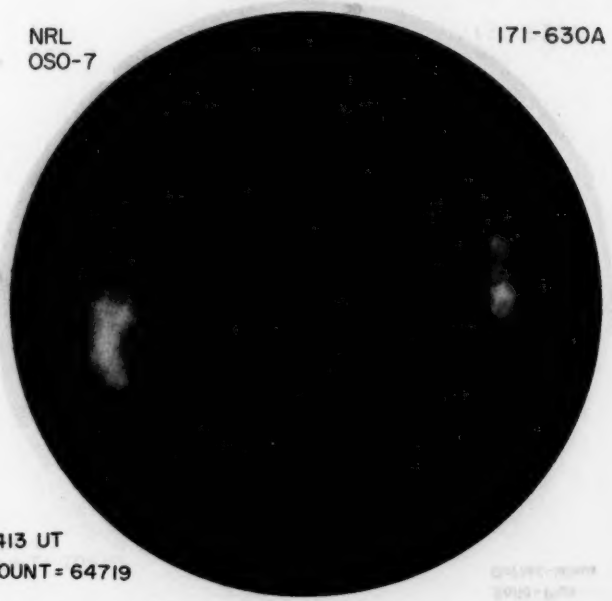
FE XV
284A

COUNT = 48825
ROLL = 106.5°
P-TH = 6.57
B_o = 3.08

Np

NRL
OSO-7

171-630A



E

W

1413 UT
COUNT = 64719

NOVEMBER 13, 1972 (P= 21.95, B_o= 3.02, L_o= 126.98)

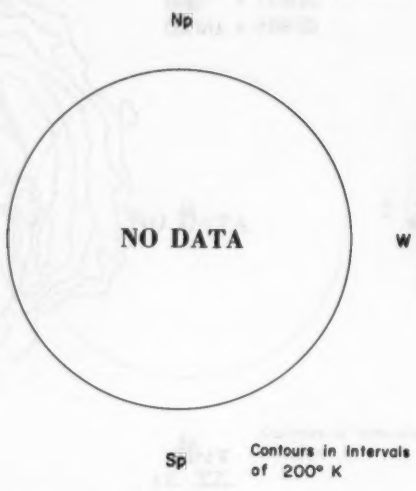
UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

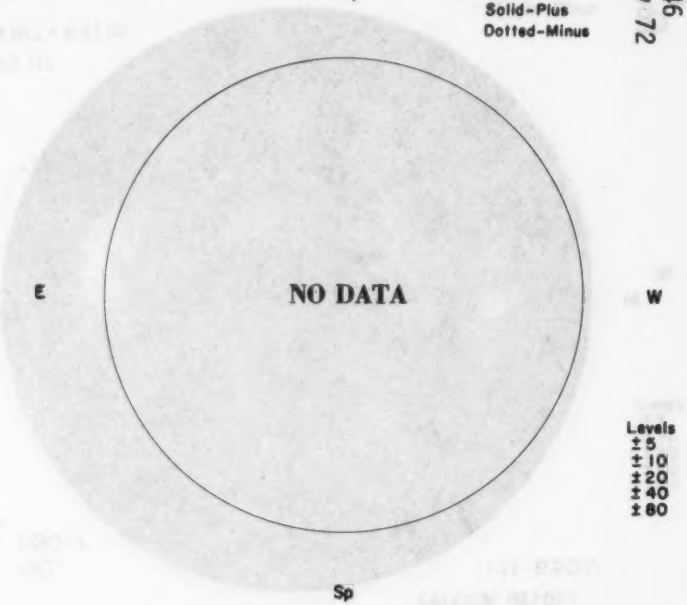
8.6 mm



Contours in Intervals of 200° K

MT. WILSON

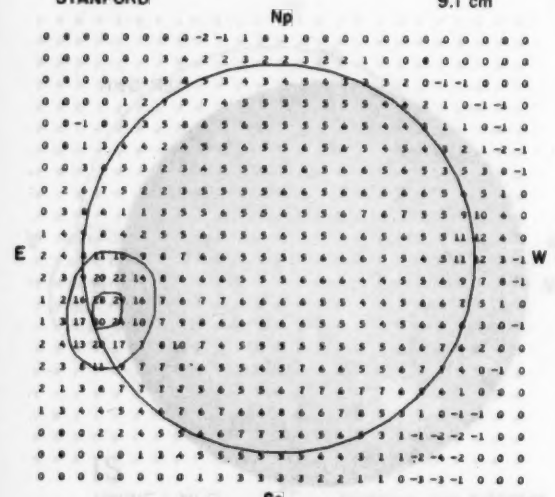
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm

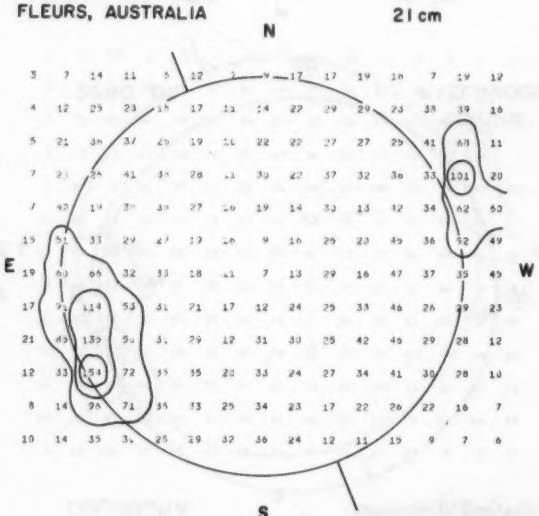


20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

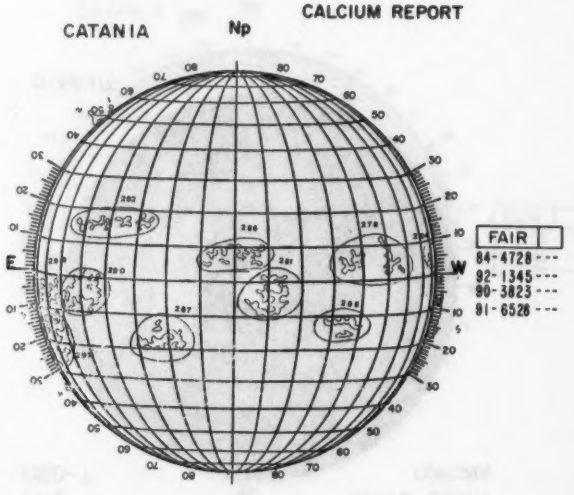


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

CATANIA

CALCIUM REPORT



0830 UT

20-21 UT

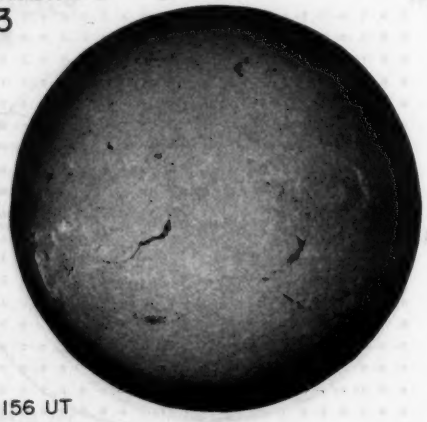
02-03 UT Brightness Unit 1,700° K

0830 UT

RAMEY AFB
13

Np

Hα



E W

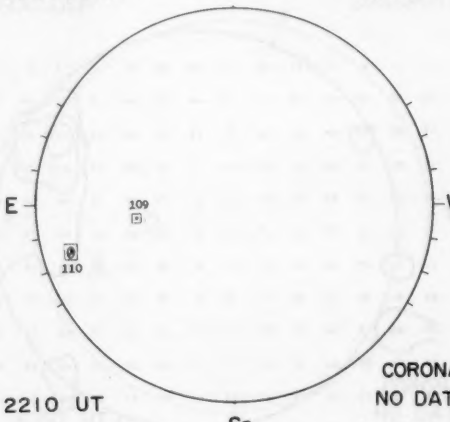
1156 UT

Sp

CULGOORA

Np

SUNSPOTS



E W

CORONA
NO DATA

2210 UT

Sp

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

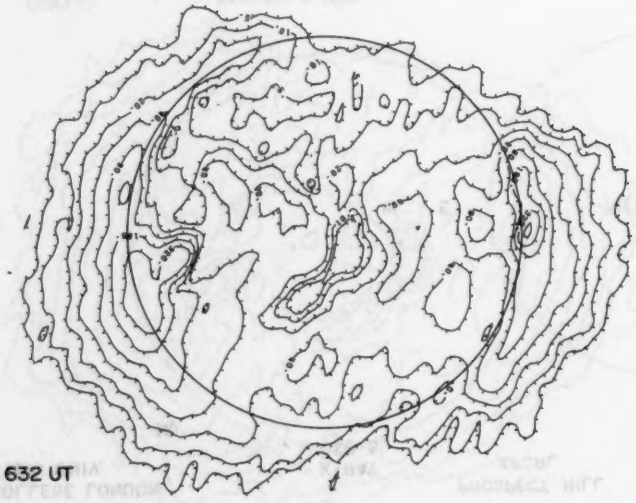
E W

2352 UT

Sp

NASA GSFC
OSO-7

Np



E W

1632 UT

Sp

FE XV
284A

COUNT = 49839
ROLL = 104.3°
P-TH = 6.63
B_o = 2.95

Np

NRL
OSO-7

171-630A

E W

1628 UT
COUNT= 70410

Sp

NOVEMBER 14, 1972 (P= 21.68, B_o= 2.90, L_o= 113.80) MT. WILSON

UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

Np

E W

Sp

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

8.6 mm

Np

E NO DATA W

Sp

Contours in Intervals of 200° K

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

E NO DATA W

Sp

Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm

Np

E W

Sp

20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

N

E W

S

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

CALCIUM REPORT

CATANIA

Np

E W

Sp

0900 UT

FAIR
92- 904---
90-2362---
91-3594---

20-21 UT

02-03 UT Brightness Unit 1,700° K

0900 UT

BOULDER
14

Np

Hα

E

W

2018 UT

Sp

BOULDER

Np

SUNSPOTS

109

110

E

W

2030 UT

Sp

CORONA
NO DATA

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

0735 UT

Sp

NASA GSFC
OSO-7

Np

E

W

2225 UT

Sp

FE XV
284A

20 X 20 ARCSEC APERTURE
COUNT = 89002
ROLL = 102.1°
P-TH = 6.70
B_o = 2.85

NRL
OSO-7

Np

171-630A

E

W

1120 UT
COUNT= 65483

NOVEMBER 15, 1972 (P= 21.41, B_o= 2.79, L_o= 100.62) MT. WILSON

UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

Np

E W

Sp

Intensities in Units
of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

8.6 mm

Np

E W

NO DATA

Sp

Contours in Intervals
of 200° K

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

E W

NO DATA

Sp

Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm

Np

E W

Sp

20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

N

E W

S

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

CATANIA

CALCIUM REPORT

Np

E W

Sp

0850 UT

FAIR
92 - 744 ---
90 - 2742 ---
91 - 3584 ---

20-21 UT

Brightness Unit 5,000° K

02-03 UT

Resolution 3 Minutes of Arc

Brightness Unit 1,700° K

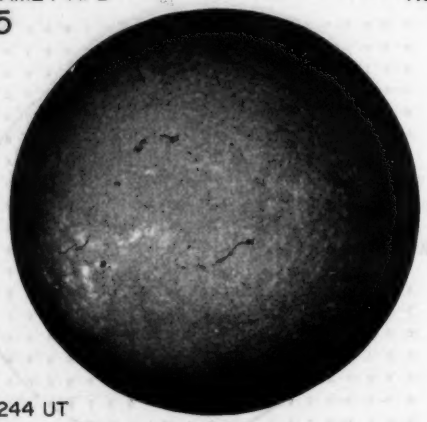
0850 UT

RAMEY AFB

15

Np

Hα



E

W

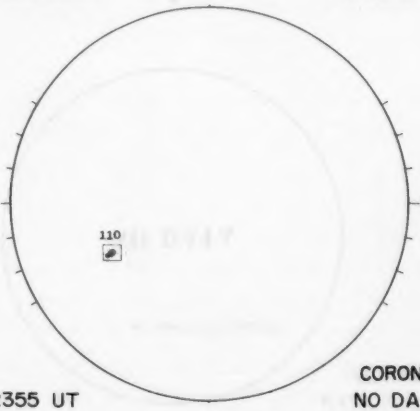
1244 UT

Sp

CULGOORA

Np

SUNSPOTS



E

W

2355 UT

Sp

CORONA

NO DATA

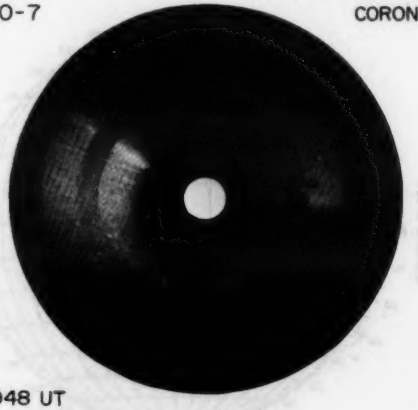
NRL

OSO-7

Np

WHITE-LIGHT

CORONA



E

W

0948 UT

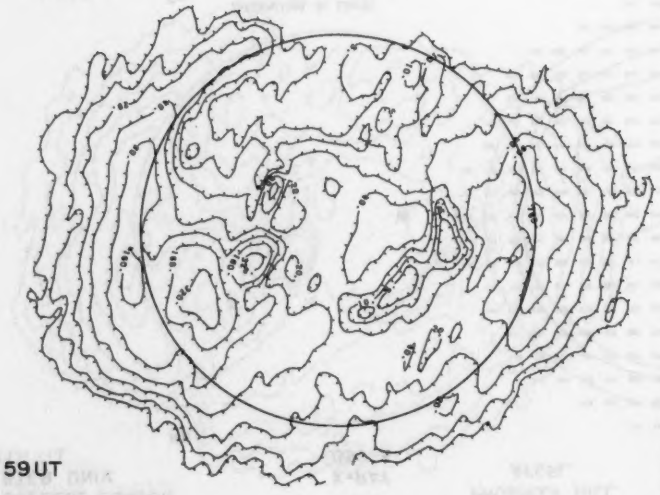
Sp

Np

NASA GSFC

OSO-7

Np



E

W

1159UT

Sp

FE XV

284A

COUNT = 48427

ROLL = 102.6°

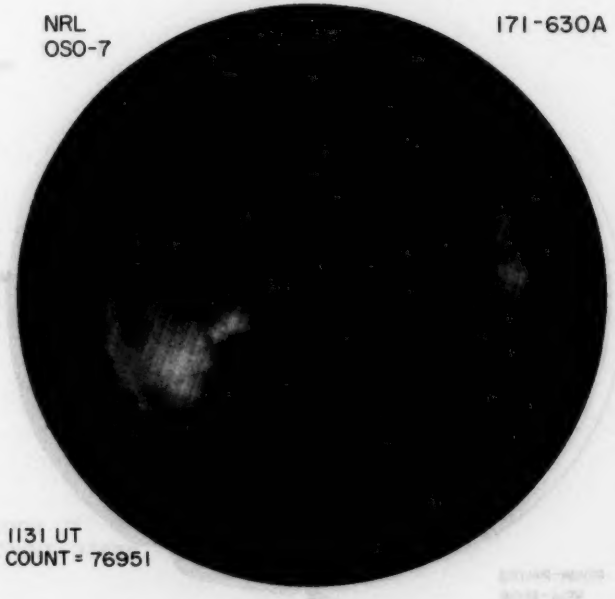
P-TH = 6.72

B_0 = 2.74

NRL

OSO-7

171-630A



E

W

1131 UT

COUNT = 76951

Sp

51

Nov 72

NOVEMBER 16, 1972 (P= 21.13, B_o = 2.67, L_o = 87.43) MT. WILSON

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

NO DATA

E W

Sp

Levels
±5
±10
±20
±40
±80

UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

Np

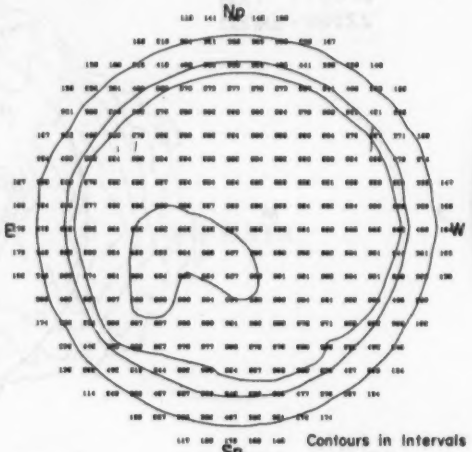
E W

Sp

Intensities in Units
of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

8.6 mm



Np

E W

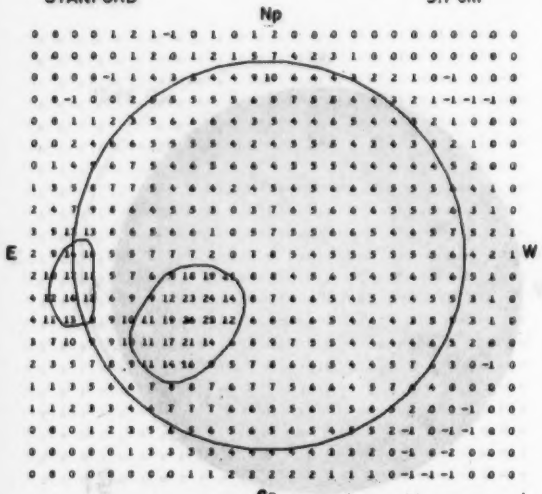
Sp

Contours in Intervals
of 200° K

1632 UT

STANFORD

9.1 cm



Np

E W

Sp

Brightness Unit 5,000° K

20-21 UT

FLEURS, AUSTRALIA

21 cm

N

NO DATA

E W

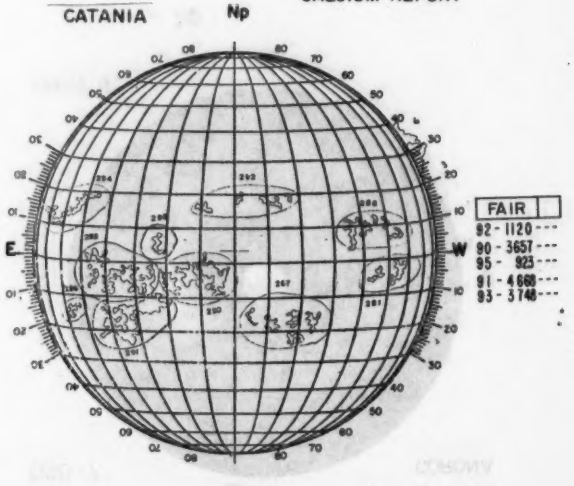
S

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

02-03 UT

CALCIUM REPORT

CATANIA



0740 UT

Np

Hα

POULDER

Np

POULDER

SUNSPOTS

NRL

Np

WHITE-LIGHT

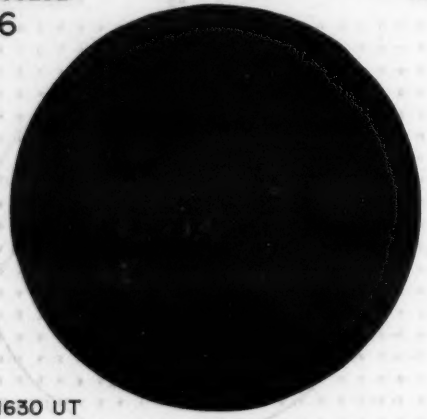
20-21 UT

02-03 UT Brightness Unit 1,700° K

0740 UT

BOULDER Np Hα

16

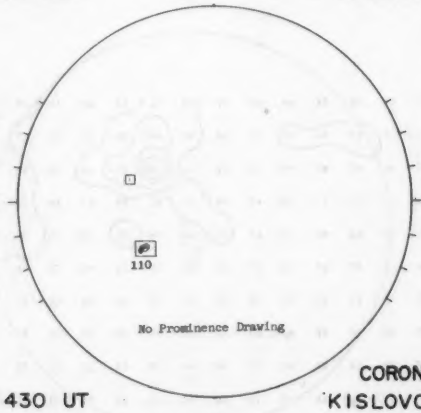


E W

Sp

1630 UT

BOULDER Np SUNSPOTS



E W

Sp

1430 UT

CORONA
KISLOVODSK

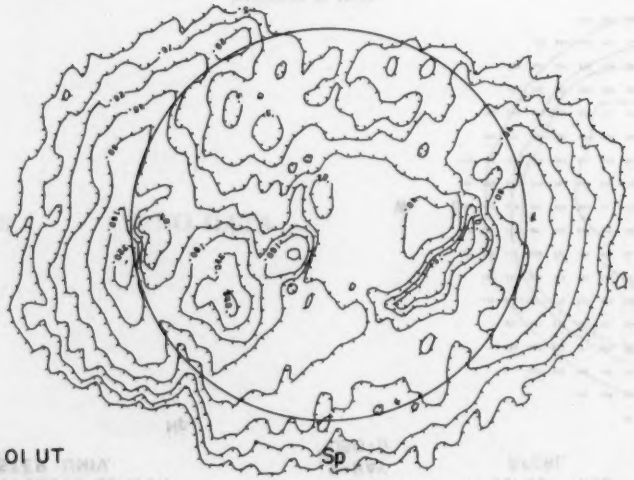
NRL Np WHITE-LIGHT
OSO-7 CORONA

E W

Sp

0550 UT

NASA GSFC Np
OSO-7



E W

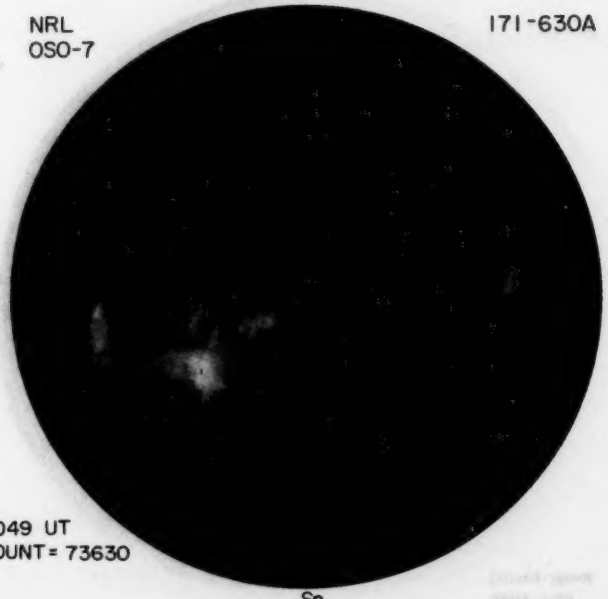
Sp

1101 UT

FE XV
284A

COUNT = 55351
ROLL = 102.5°
P-TH = 6.76
B_o = 2.62

NRL Np 171-630A
OSO-7



E W

Sp

1049 UT
COUNT = 73630

53
Nov 72

NOVEMBER 17, 1972 (P = 20.84, B_o = 2.55, L_o = 74.25)

MT. WILSON

MAGNETOGRAM
Solid - Plus
Dotted - Minus

Np

NO DATA

E W

Sp

Levels
±5
±10
±20
±40
±80

UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

Np

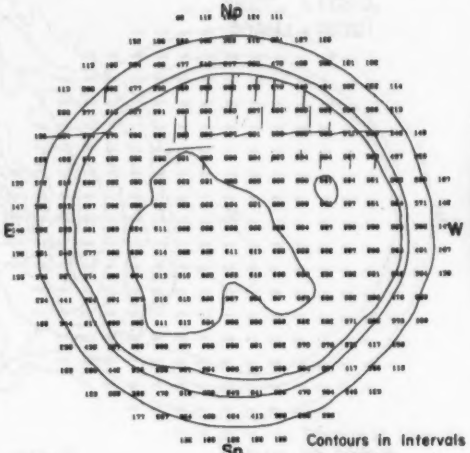
E W

Sp

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

8.6 mm



Np

E W

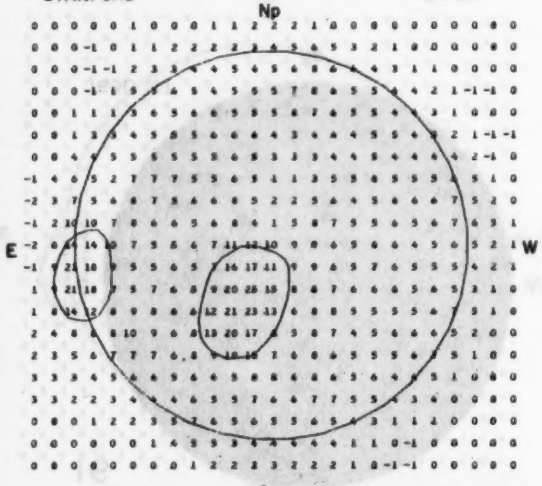
Sp

1721 UT

Contours in Intervals of 200° K

STANFORD

9.1 cm



Np

E W

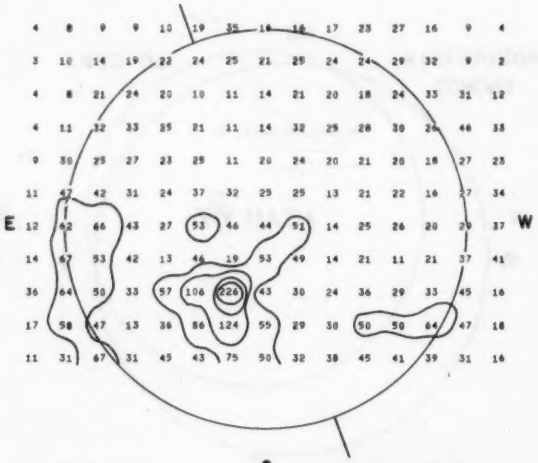
Sp

20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm



N

E W

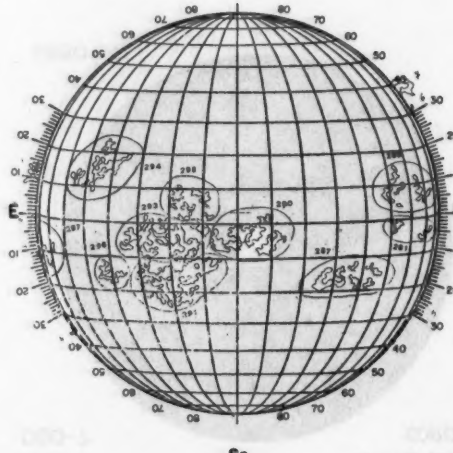
S

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

CATANIA

CALCIUM REPORT



Np

E W

Sp

0810 UT

FAIR

90 - 3594 ---
95 - 1453 ---
91 - 5847 ---
93 - 4649 ---
97 - 4818 ---

20-21 UT

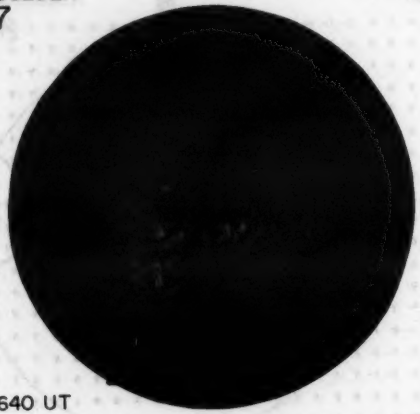
02-03 UT Brightness Unit 1,700° K

0810 UT

BOULDER
17

Np

Hα



E

W

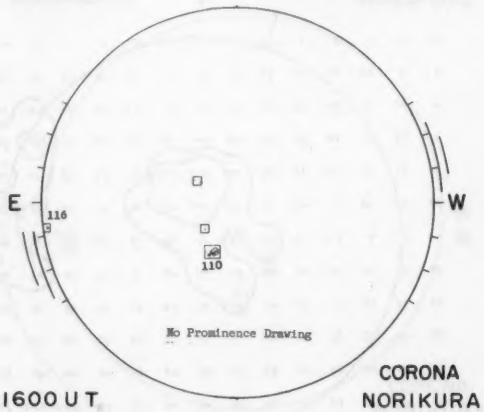
1640 UT

Sp

BOULDER

Np

SUNSPOTS



1600 UT

CORONA
NORIKURA

Sp

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

0802 UT

Sp

NASA GSFC
OSO-7

Np

E

NO DATA

W

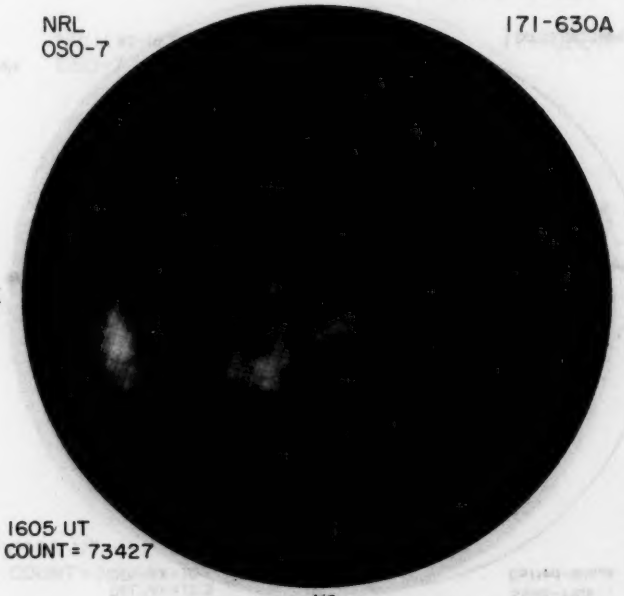
Sp

FE XV
284A

Np

NRL
OSO-7

171-630A



E

W

1605 UT
COUNT = 73427

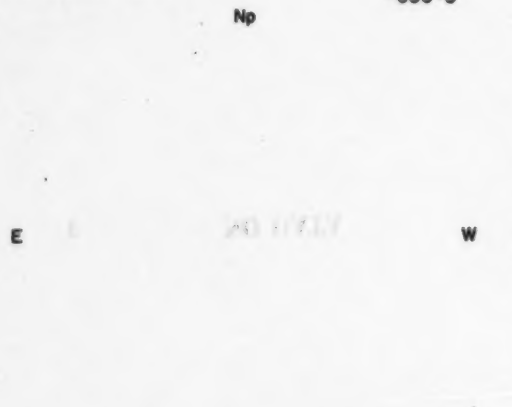
Sp

55
Nov 72

NOVEMBER 18, 1972 (P = 20.55, B_o = 2.43, L_o = 61.07)

UNIV. COLLEGE LONDON
LEICESTER UNIV.

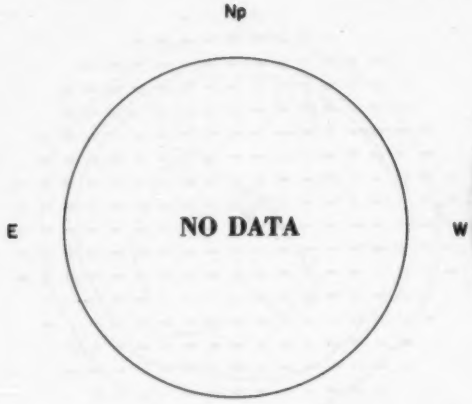
X-RAY
OSO-5



Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

8.6 mm

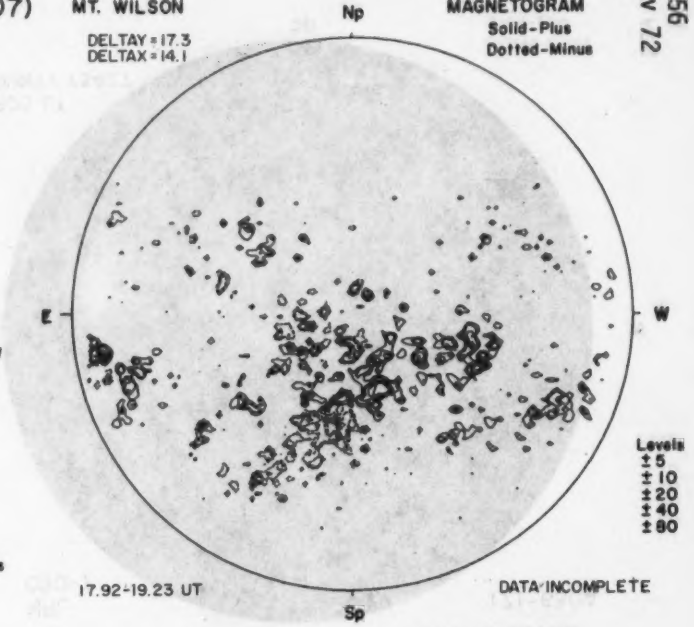


Contours in Intervals of 200° K

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 17.3
DELTAX = 14.1

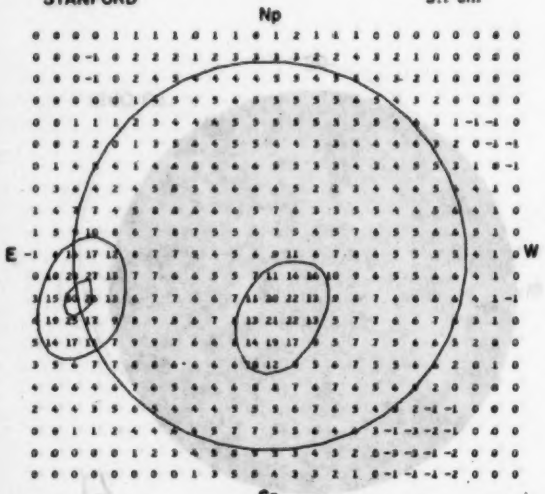


17.92-19.23 UT

DATA INCOMPLETE

STANFORD

9.1 cm

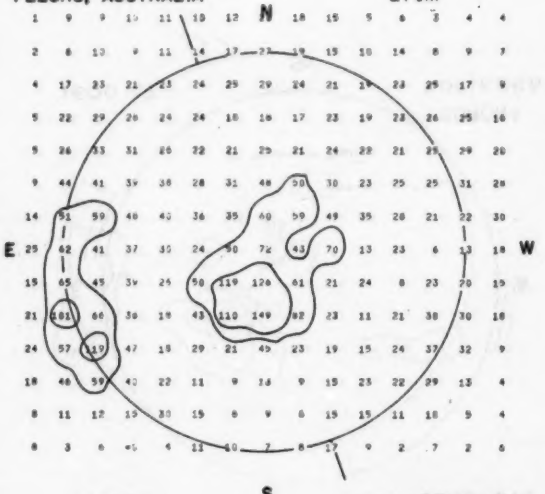


Brightness Unit 5,000° K

20-21 UT

FLEURS, AUSTRALIA

21 cm

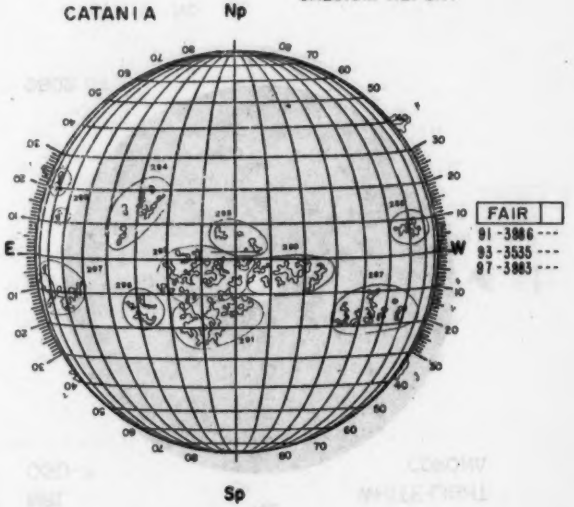


Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

02-03 UT

CALCIUM REPORT

CATANIA



0755 UT

20-21 UT

Brightness Unit 5,000° K

02-03 UT

Resolution 5 Minutes of Arc
Brightness Unit 1,700° K

0755 UT

BOULDER
18

Np

Hα

E

NO DATA

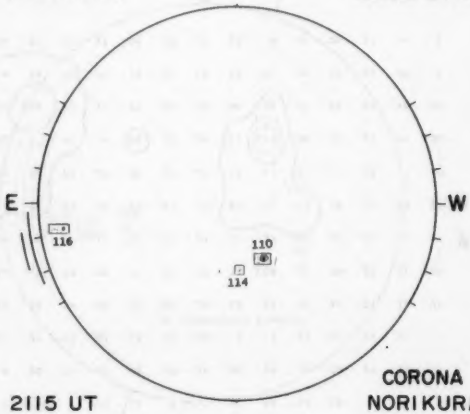
W

Sp

CULGOORA

Np

SUNSPOTS



2115 UT

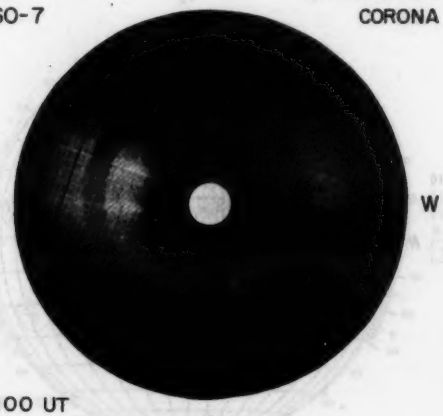
Sp

CORONA
NORIKURA

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

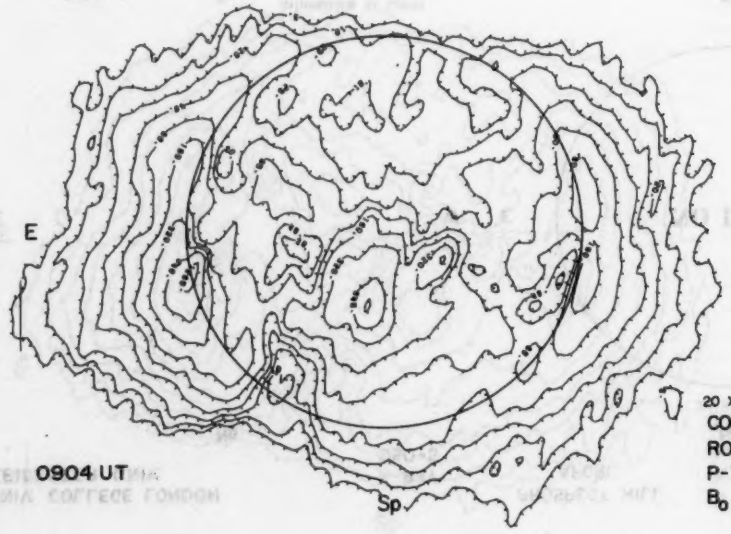


0100 UT

Sp

NASA GSFC
OSO-7

Np



0904 UT

Sp

FE XV
284A

20 X 20 ARCSEC APERTURE
COUNT = 115149
ROLL = 101.5°
P-TH = 6.85
B_0 = 2.39

Np

NRL
OSO-7

171-630A

0908 UT
COUNT = 76514

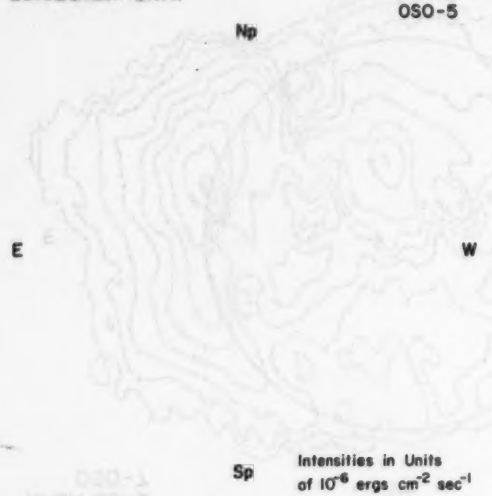
Sp

57
Nov 72

NOVEMBER 19, 1972 (P = 20.25, B_o = 2.31, L_o = 47.89)

UNIV. COLLEGE LONDON
LEICESTER UNIV.

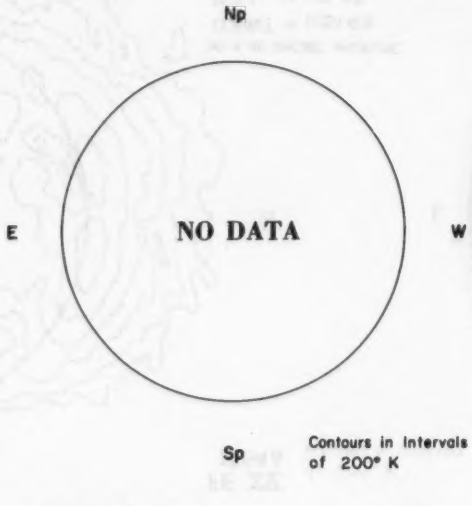
X-RAY
OSO-5



Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

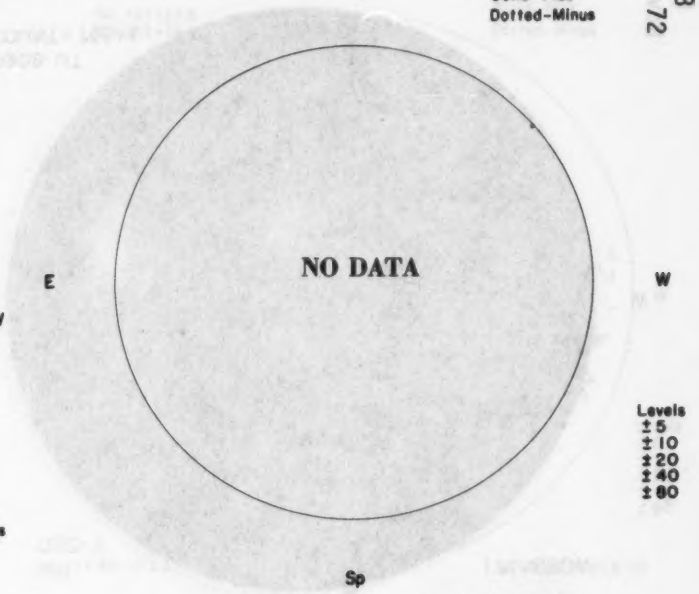
8.6 mm



Contours in Intervals of 200° K

MT. WILSON

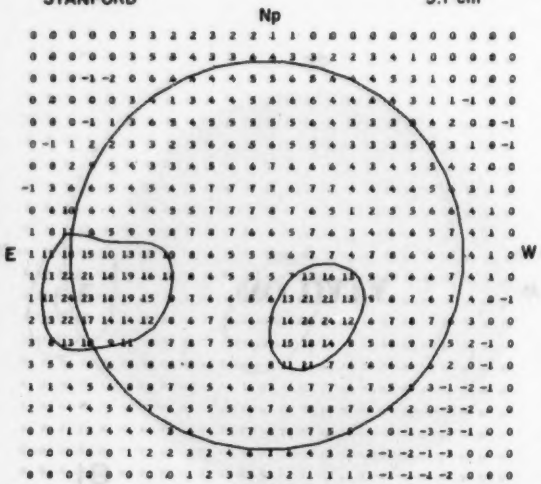
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm

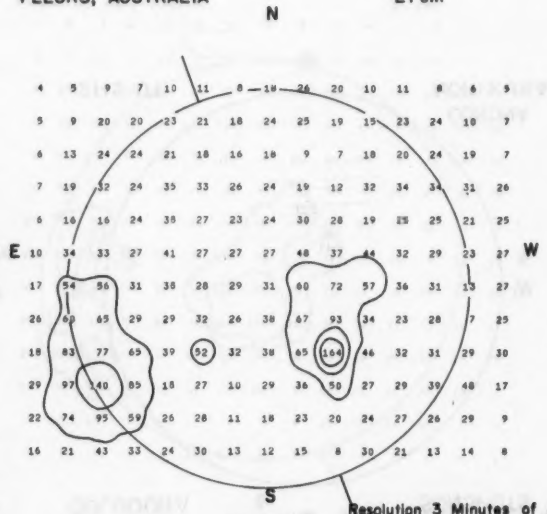


Brightness Unit 5,000° K

20-21 UT

FLEURS, AUSTRALIA

21 cm

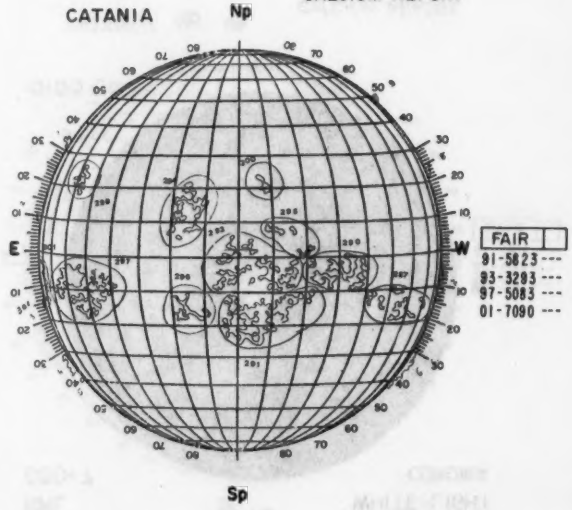


Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

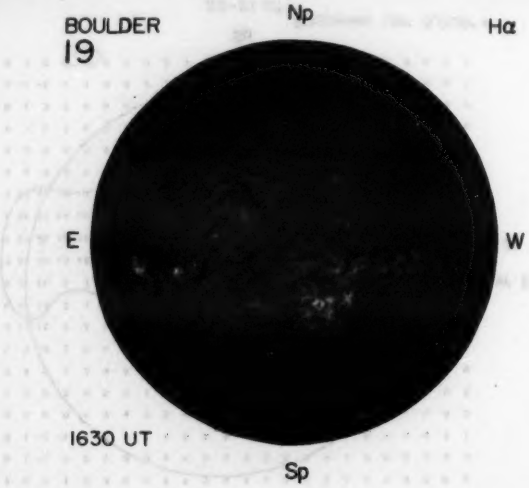
02-03 UT

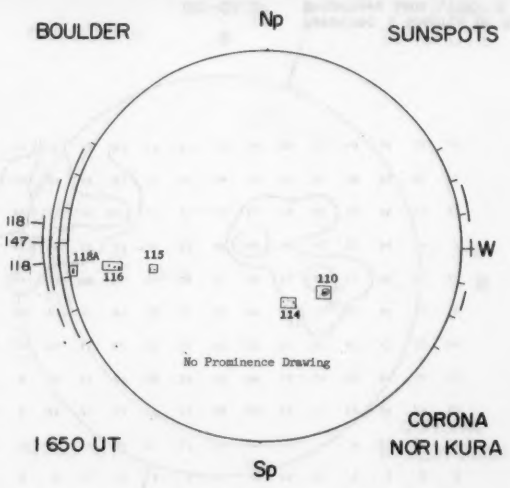
CATANIA

CALCIUM REPORT

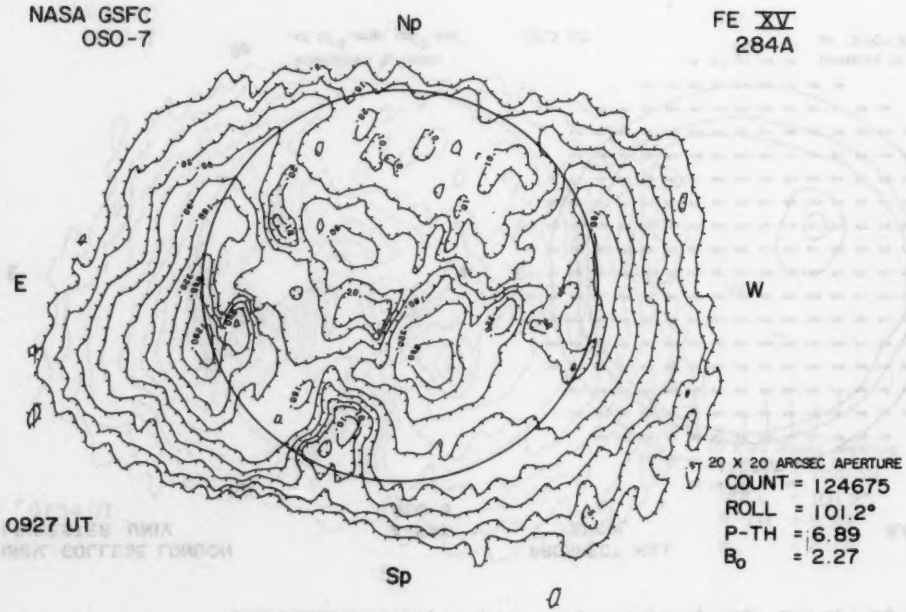


0825 UT


BOULDER
19
Np
Hα
E
W
1630 UT
Sp


BOULDER
Np
SUNSPOTS
118
147
118
118A
116
115
110
114
W
No Prominence Drawing
CORONA
NORIKURA
1650 UT
Sp

NRL
OSO-7
Np
WHITE-LIGHT
CORONA
E
W
0444 UT
Sp

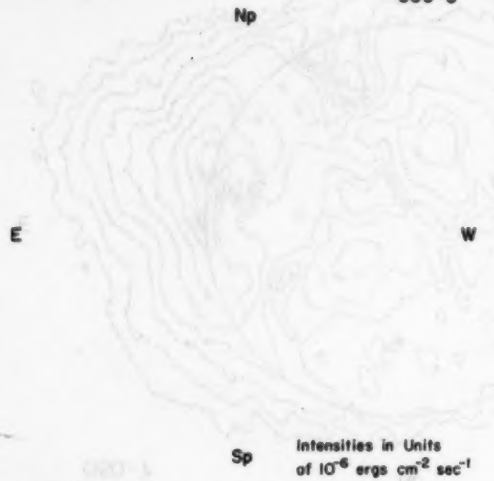

NASA GSFC
OSO-7
Np
FE XV
284A
E
W
0927 UT
Sp
20 X 20 ARCSEC APERTURE
COUNT = 124675
ROLL = 101.2°
P-TH = 6.89
B_0 = 2.27

Np
NRL
OSO-7
171-630A
E
W
0931 UT
COUNT= 80938
Sp

NOVEMBER 20, 1972 (P= 19.94, B_o = 2.19, L_o = 34.71)

UNIV. COLLEGE LONDON
LEICESTER UNIV.

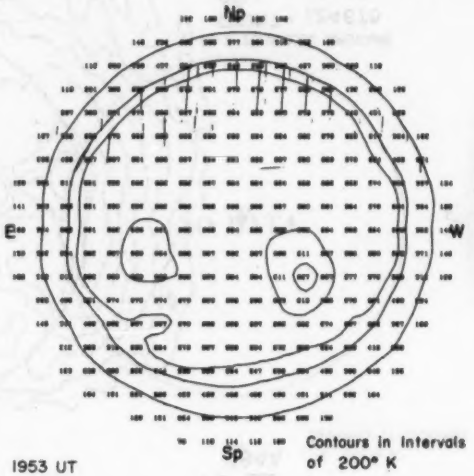
X-RAY
OSO-5



Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

8.6 mm



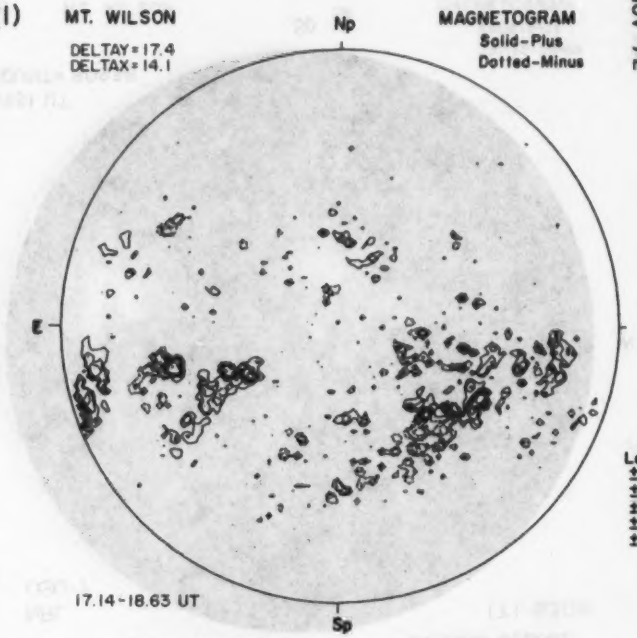
1953 UT

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.1

MAGNETOGRAM
Solid-Plus
Dotted-Minus

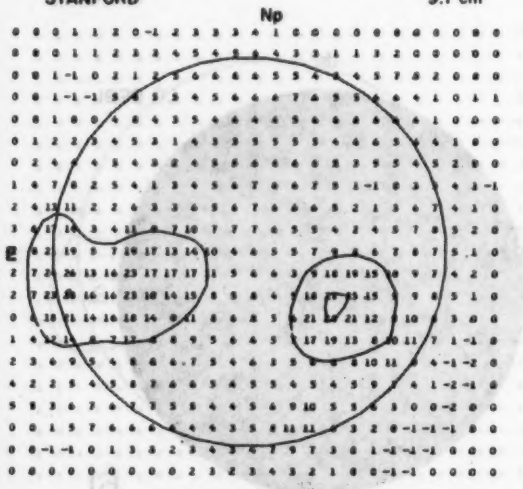


Levels
±5
±10
±20
±40
±80

17.14-18.63 UT

STANFORD

9.1 cm

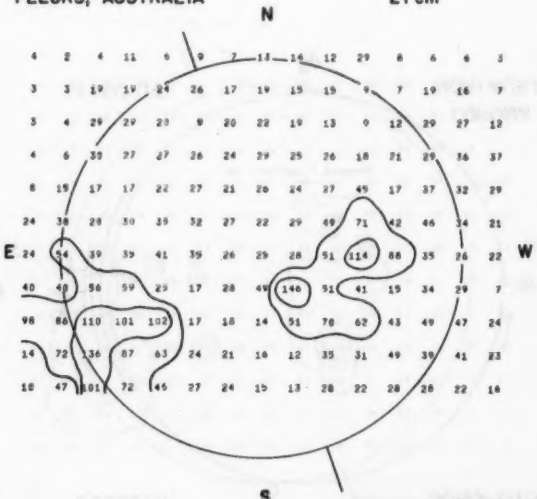


Brightness Unit 5,000° K

20-21 UT

FLEURS, AUSTRALIA

21 cm

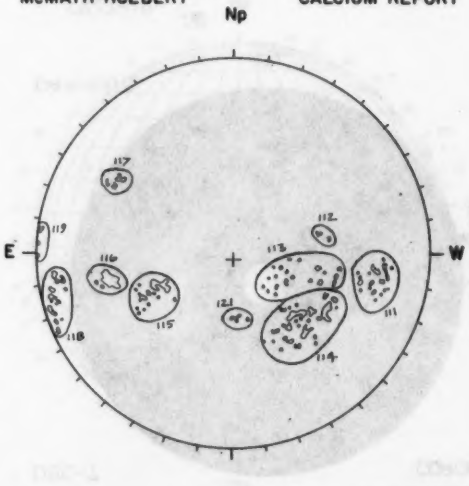


Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

02-03 UT

McMATH-HULBERT

CALCIUM REPORT



FAIR | D
14-2500-3.0
15-1200-3.0
16-1300-3.5
18-2400-3.0

1625 UT

20-21 UT

02-03 UT Brightness Unit 1,700° K

1625 UT

BOULDER
20

Np

Hα

E

NO DATA

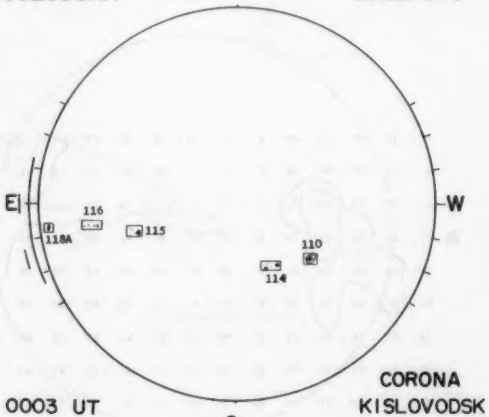
W

Sp

CULGOORA

Np

SUNSPOTS



0003 UT

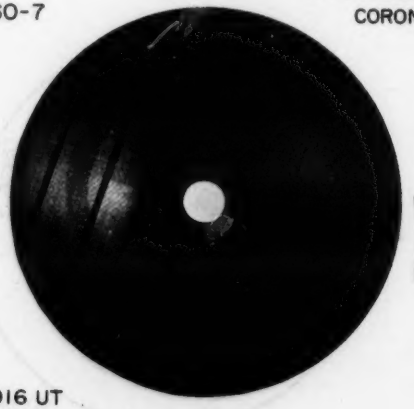
Sp

CORONA
KISLOVODSK

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

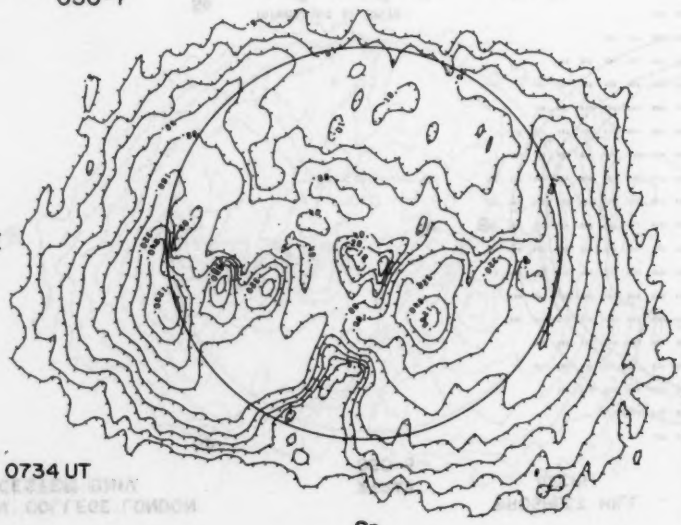


1916 UT

Sp

NASA GSFC
OSO-7

Np



0734 UT

Sp

FE XV
284A

20 X 20 ARCSEC APERTURE
COUNT = 123136
ROLL = 101.2°
P-TH = 6.92
B_0 = 2.16

Np

NRL
OSO-7

171-630A

1027 UT
COUNT= 78912

Sp

61
Nov 72

NOVEMBER 21, 1972 (P = 19.62, B_o = 2.07, L_o = 21.52)

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

Np

NO DATA

E W

Sp

Levels
±5
±10
±20
±40
±80

UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

Np

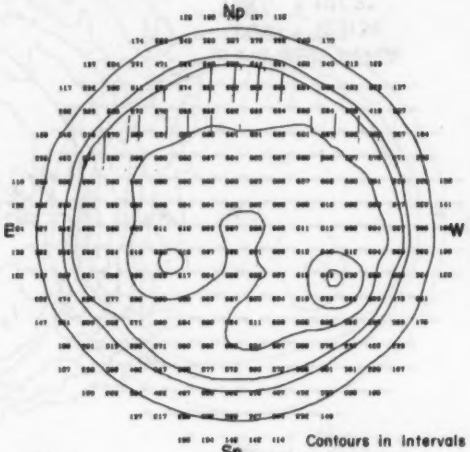
E W

Sp

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

8.6 mm



Np

E W

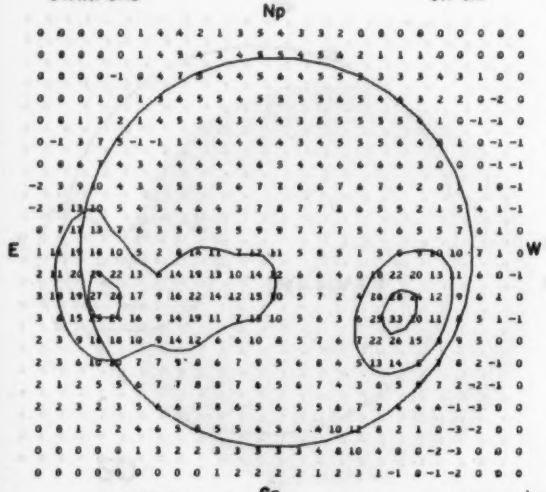
Sp

Contours in Intervals of 200° K

1402 UT

STANFORD

9.1 cm



Np

E W

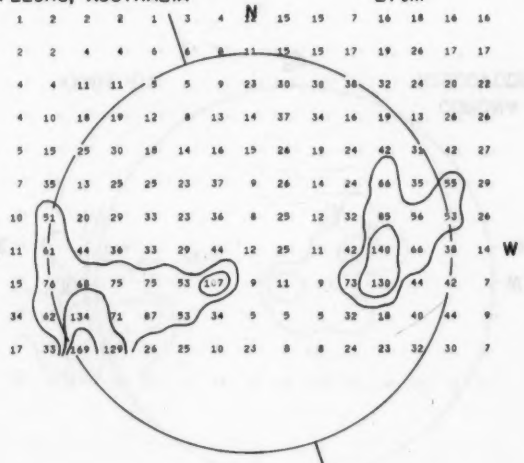
Sp

Brightness Unit 5,000° K

20-21 UT

FLEURS, AUSTRALIA

21 cm



N

E W

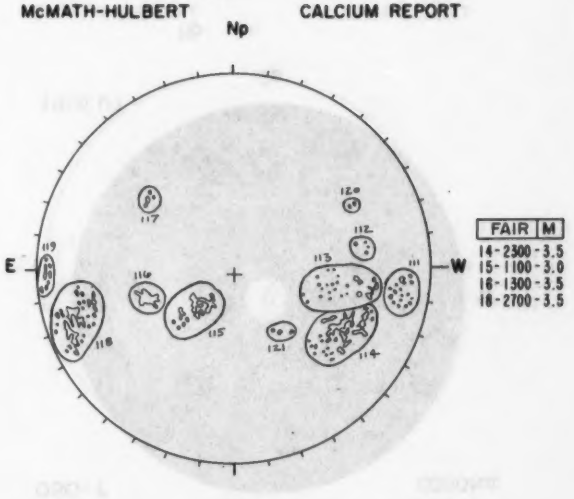
S

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

02-03 UT

McMATH-HULBERT

CALCIUM REPORT



Np

E W

Sp

FAIR | M
14-2300-3.5
15-1100-3.0
16-1300-3.5
18-2700-3.5

1630 UT

20-21 UT

02-03 UT Brightness Unit 1,700° K

1630 UT

BOULDER
21

Np

Hα

E

W

Sp

1612 UT

BOULDER

Np

SUNSPOTS

E

W

119A

118A

116

115

114

110

No Prominence Drawing

CORONA
KISLOVODSK

1600 UT

Sp

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

1823 UT

Sp

NASA GSFC
OSO-7

Np

E

W

1046 UT

Sp

FE XV
284A

COUNT = 75460
ROLL = 103.0°
P-TH = 6.96
B_o = 2.02

NRL
OSO-7

Np

171-630A

E

W

0621 UT
COUNT= 82004

Sp

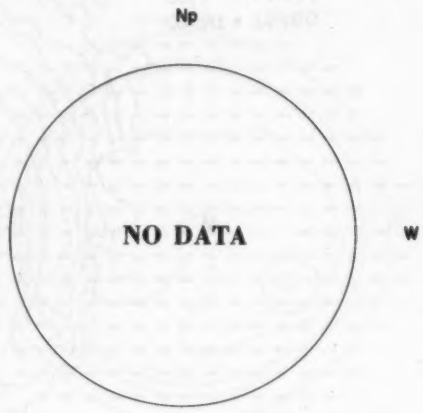
63
Nov 72

NOVEMBER 22, 1972 (P= 19.30, B_o= 1.94, L_o= 8.34)

UNIV. COLLEGE LONDON
LEICESTER UNIV.
X-RAY
OSO-5

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

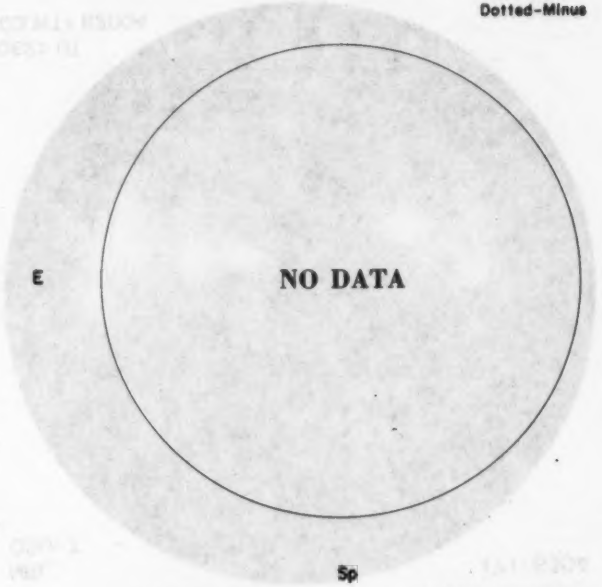
PROSPECT HILL
AFCRL
8.6 mm



Contours in Intervals of 200° K

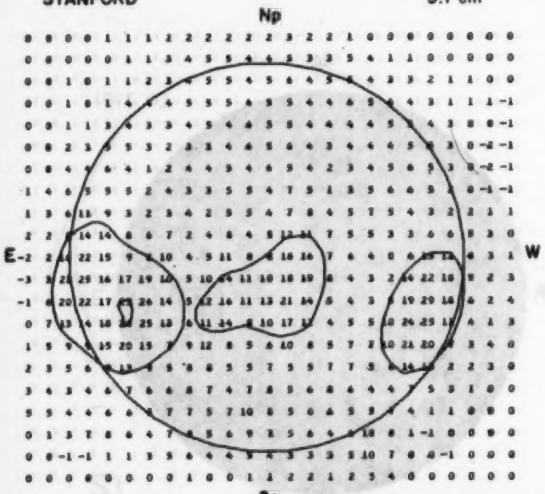
MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus



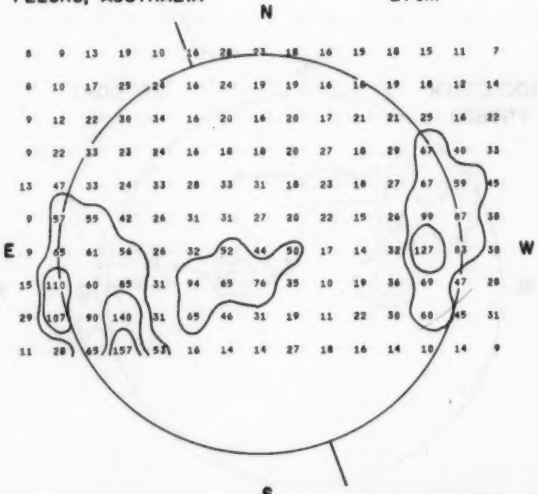
Levels
±5
±10
±20
±40
±80

STANFORD
9.1 cm



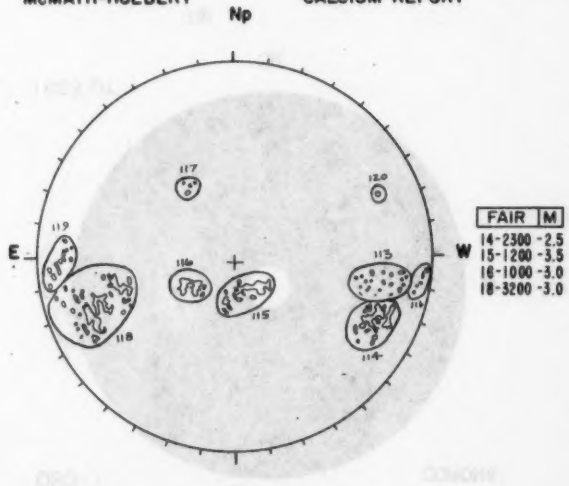
20-21 UT
Brightness Unit 5,000° K

FLEURS, AUSTRALIA
21 cm



02-03 UT
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT
CALCIUM REPORT

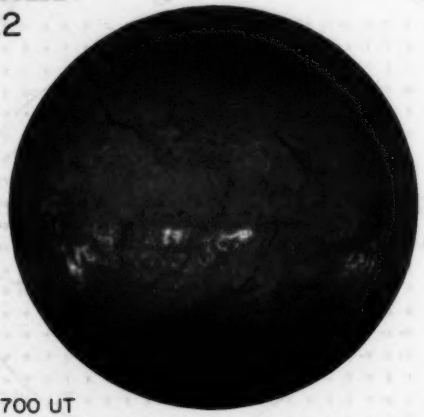


1610 UT

BOULDER
22

Np

Hα

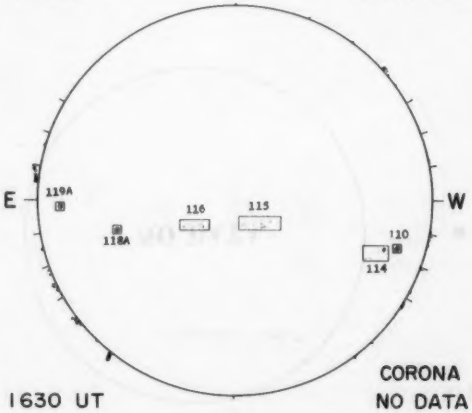


1700 UT

BOULDER

Np

SUNSPOTS



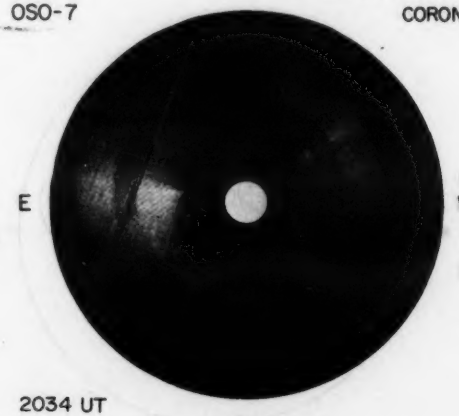
1630 UT

CORONA
NO DATA

NRL
OSO-7

Np

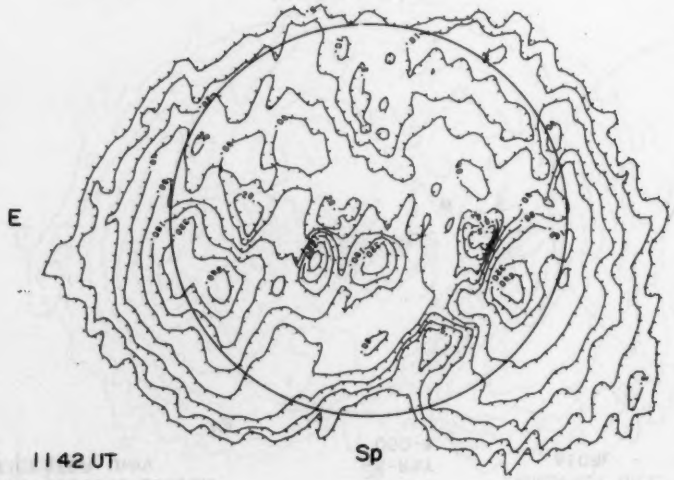
WHITE-LIGHT
CORONA



2034 UT

NASA GSFC
OSO-7

Np



1142 UT

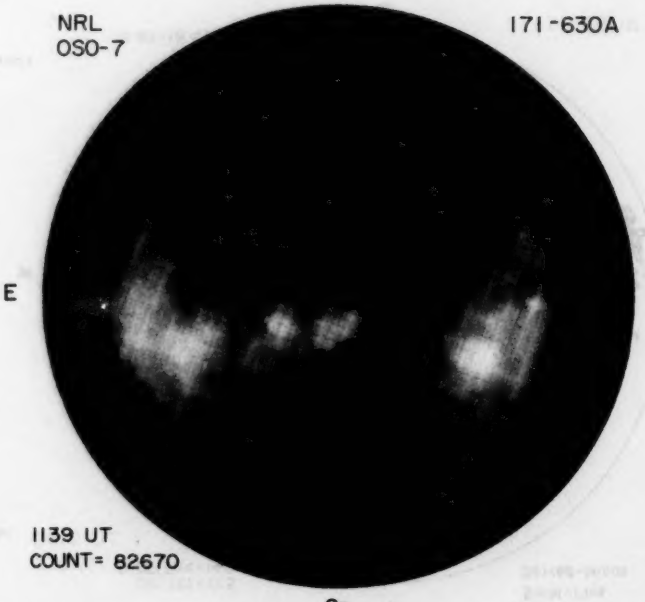
FE XV
284A

COUNT = 70854
ROLL = 103.1°
P-TH = 7.00
B_0 = 1.89

NRL
OSO-7

Np

171-630A

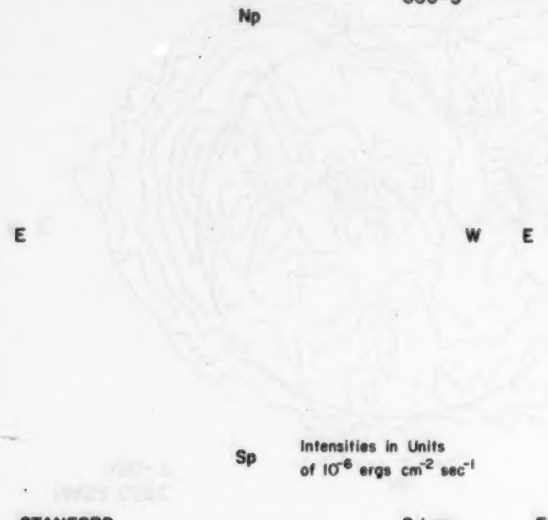


1139 UT
COUNT= 82670

65
Nov 72

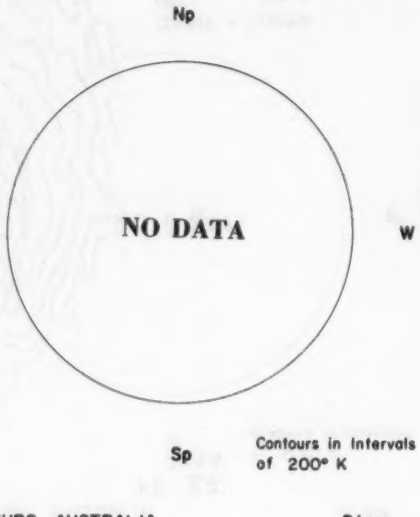
NOVEMBER 23, 1972 (P= 18.96, B_o= 1.82, L_o= 355.16)

UNIV. COLLEGE LONDON
LEICESTER UNIV.
X-RAY
OSO-5



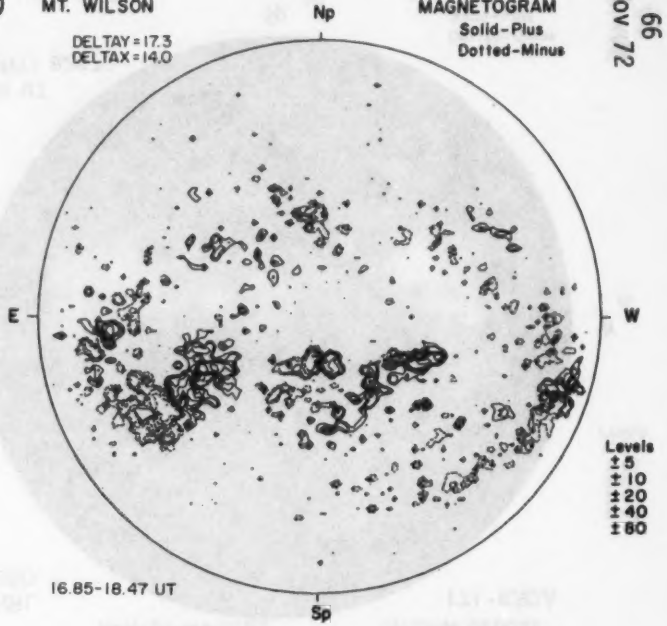
Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL
8.6 mm



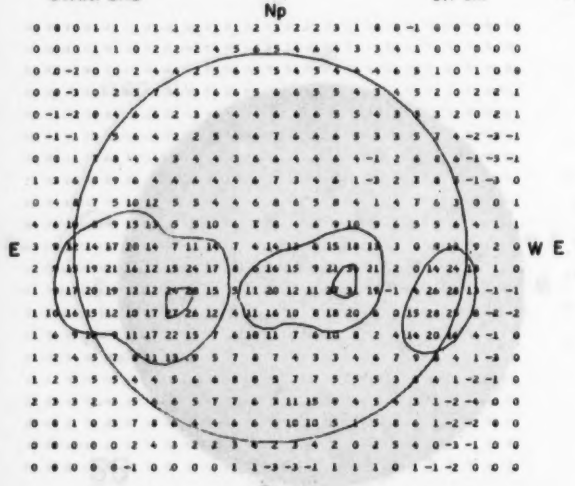
Contours in Intervals of 200° K

MT. WILSON
MAGNETOGRAM
Solid-Plus
Dotted-Minus



16.85-18.47 UT

STANFORD
9.1 cm



Brightness Unit 5,000° K

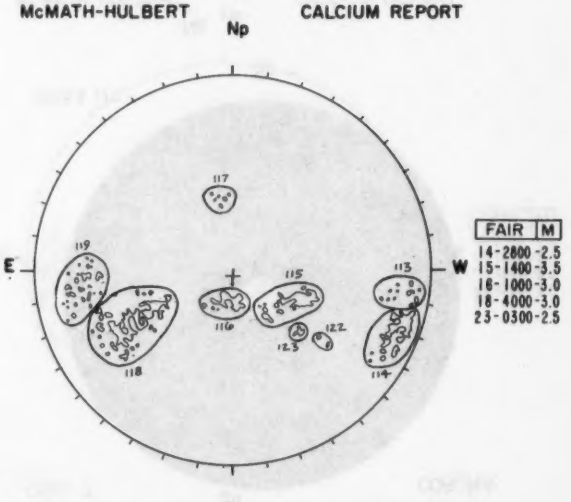
20-21 UT

FLEURS, AUSTRALIA
21 cm

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

02-03 UT

McMATH-HULBERT
CALCIUM REPORT



1355 UT

20-21 UT

Brightness Unit 5,000° K

02-03 UT

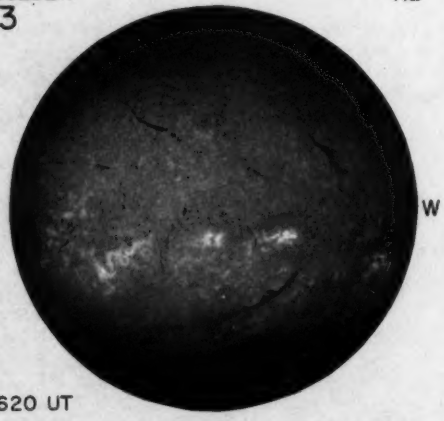
Brightness Unit 1,700° K

1355 UT

BOULDER
23

Np

Hα



E

W

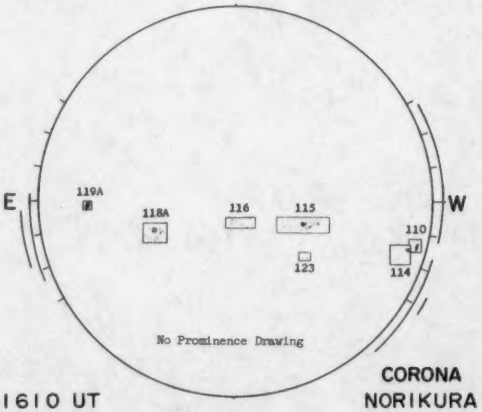
1620 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

1610 UT

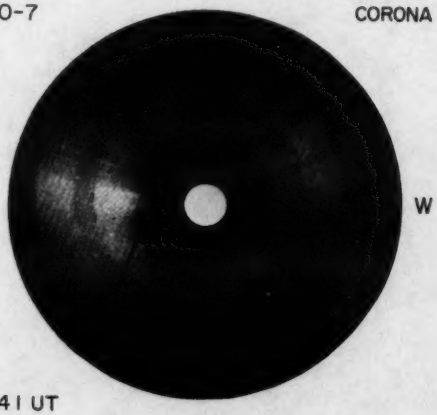
Sp

CORONA
NORIKURA

NRL
OSO-7

Np

WHITE-LIGHT
CORONA



E

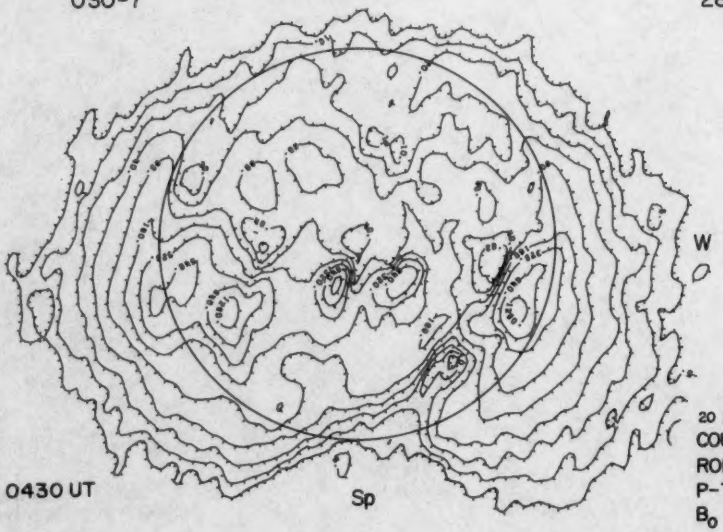
W

1941 UT

Sp

NASA GSFC
OSO-7

Np



E

W

0430 UT

Sp

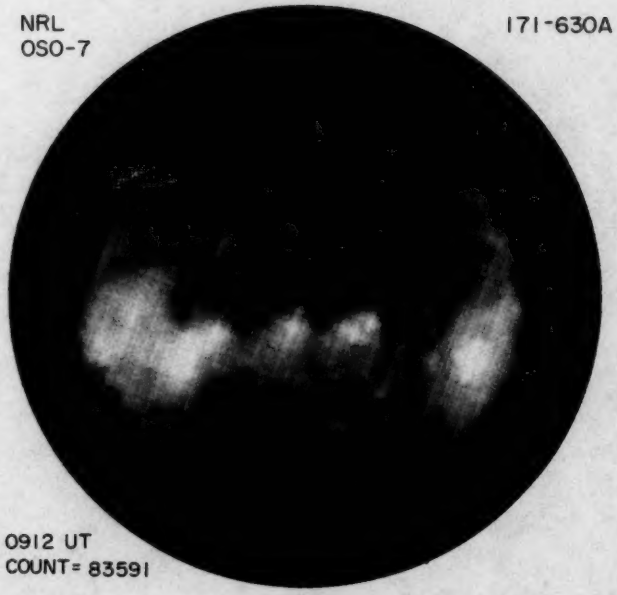
FE XV
284A

20 X 20 ARCSEC APERTURE
COUNT = 138896
ROLL = 102.9°
P-TH = 7.03
B_0 = 1.78

Np

NRL
OSO-7

171-630A



E

W

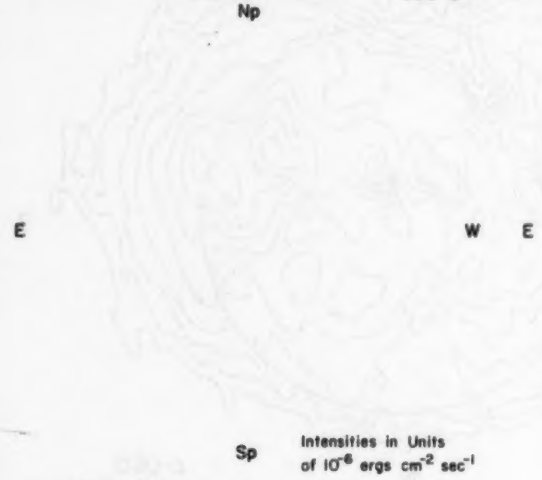
0912 UT
COUNT= 83591

Sp

67
Nov 72

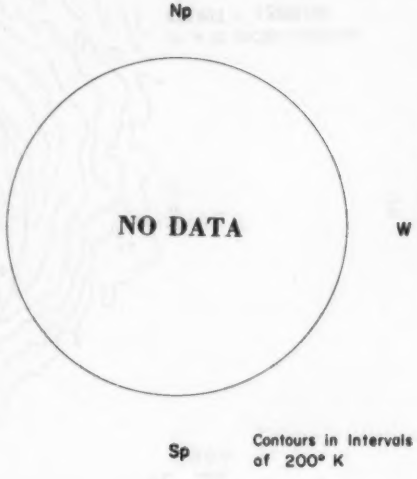
NOVEMBER 24, 1972 (P = 18.63, B_o = 1.70, L_o = 341.98)

UNIV. COLLEGE LONDON
LEICESTER UNIV.
X-RAY
OSO-5



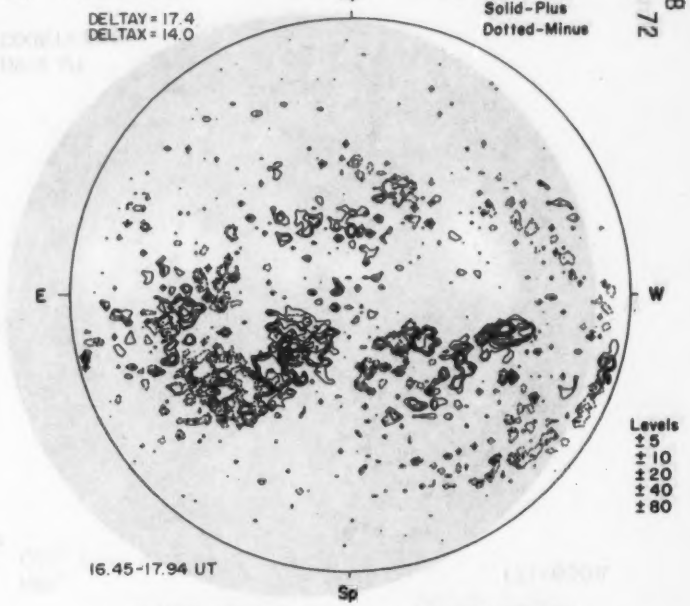
Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL
8.6 mm



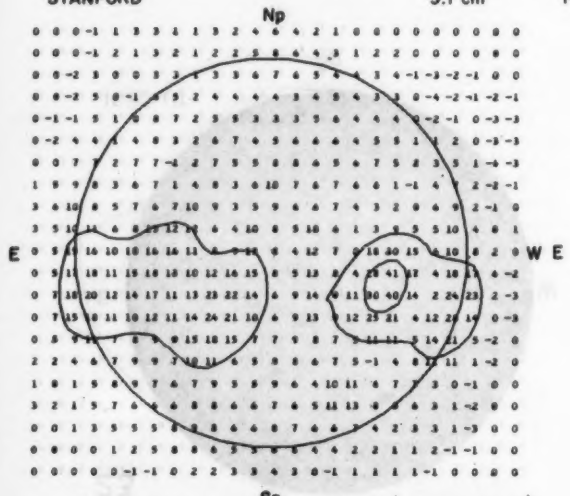
Contours in Intervals of 200° K

MT. WILSON
MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 17.4
DELTAX = 14.0



16.45-17.94 UT

STANFORD
9.1 cm

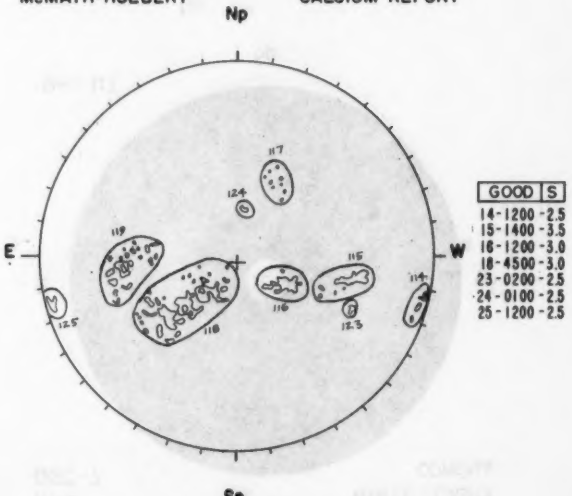


Brightness Unit 5,000° K
20-21 UT

FLEURS, AUSTRALIA
21 cm

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K
02-03 UT

McMATH-HULBERT
CALCIUM REPORT



1745 UT

20-21 UT

02-03 UT Brightness Unit 1,700° K

1745 UT

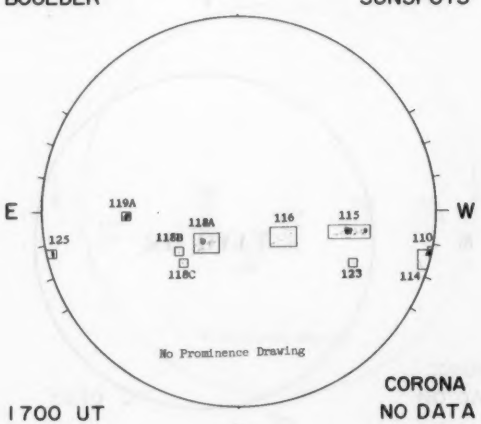
BOULDER Np Hα

24

1705 UT

Sp

BOULDER Np SUNSPOTS



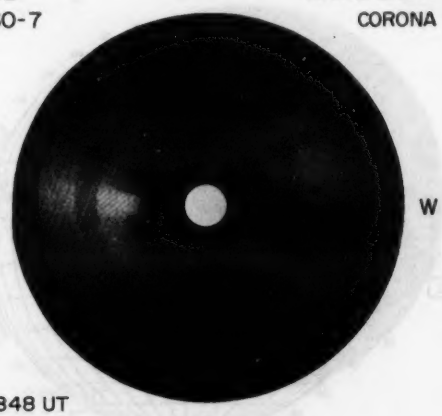
1700 UT

Sp

CORONA NO DATA

NRL Np WHITE-LIGHT CORONA

OSO-7

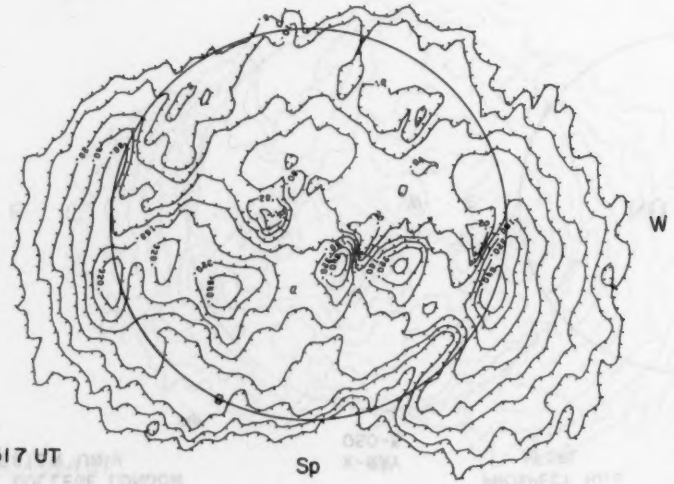


1848 UT

Sp

NASA GSFC Np

OSO-7



0517 UT

Sp

FE XV

284A

COUNT = 84202

ROLL = 103.3°

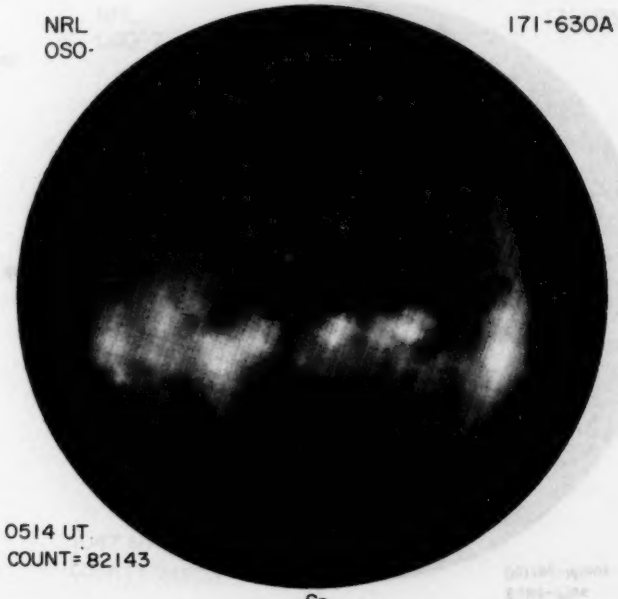
P-TH = 7.05

B_o = 1.68

Np

NRL 171-630A

OSO-



0514 UT

COUNT = 82143

Sp

69

Nov 72

NOVEMBER 25, 1972 (P= 18.28, B_o = 1.57, L_o = 328.80)

MT. WILSON

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

70 Nov 72

UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

Np

E W

Sp

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

8.6 mm

Np

NO DATA

E W

Sp

Contours in Intervals of 200° K

NO DATA

E W

Sp

Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm

Np

E W

Sp

20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

N

NO DATA

E W

S

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

CALCIUM REPORT

CATANIA

Np

Sp

0830 UT

POOR

91-1832 ---
97-7745 ---
02- 769 ---
01-7420 ---
03-3683 ---
05-2897 ---

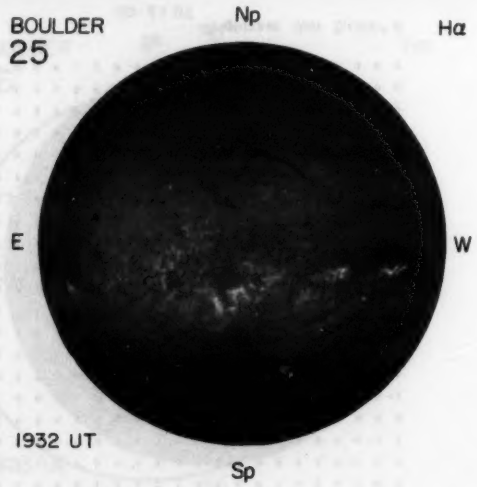
BOULDER

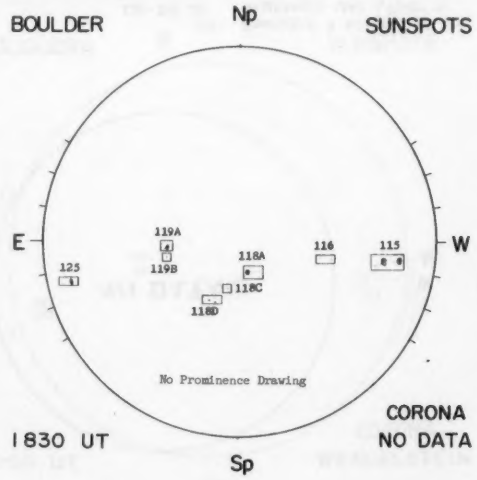
Np

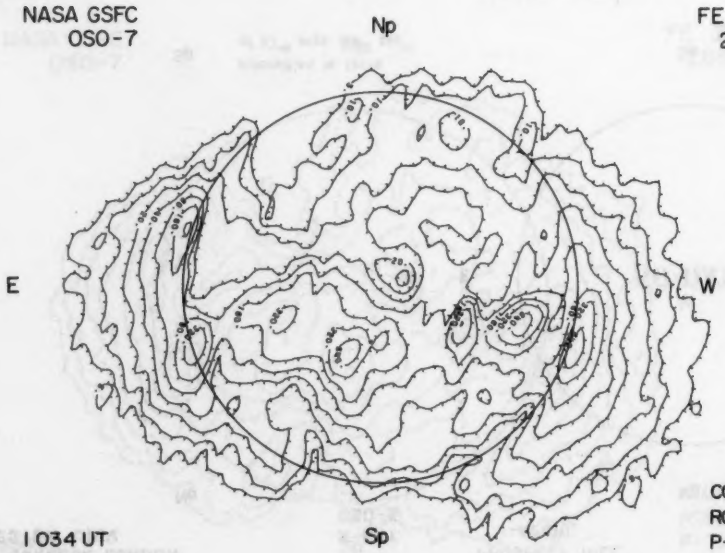
BOULDER

Np

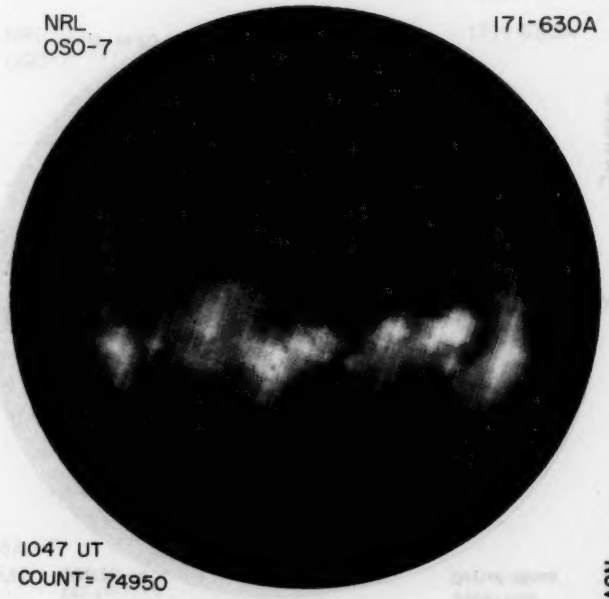
Np







COUNT = 75769
ROLL = 102.7°
P-TH = 7.09
B_0 = 1.52



71
Nov 72

NOVEMBER 26, 1972 (P = 17.93, B_o = 1.45, L_o = 315.62)

UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

Np

E W

Sp

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

8.6 mm

Np

E W

NO DATA

Sp

Contours in Intervals of 200° K

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 17.4
DELTAX = 14.0

Np

E W

Sp

16.35-18.20 UT

Levels
±5
±10
±20
±40
±80

Nov 72

STANFORD

9.1 cm

Np

E W

Sp

20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

N

NO DATA

S

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

CALCIUM REPORT

CATANIA

Np

W E

Sp

1035 UT

FAIR

07-3447
01-7859
03-3600
05-4544

20-21 UT

02-03 UT Brightness Unit 1,700° K

1035 UT

BOULDER
26

Np

Hα

E

W

Sp

1823 UT

CULGOORA

Np

SUNSPOTS

E

W

119A

118A

125

115

Sp

0100 UT

CORONA
WENDELSTEIN

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

Sp

2006 UT

NASA GSFC
OSO-7

Np

E

W

Sp

0347 UT

FE XV
284A

COUNT = 66553
ROLL = 102.7°
P-TH = 7.10
B_0 = 1.43

Np

NRL
OSO-7

171-630A

E

W

Sp

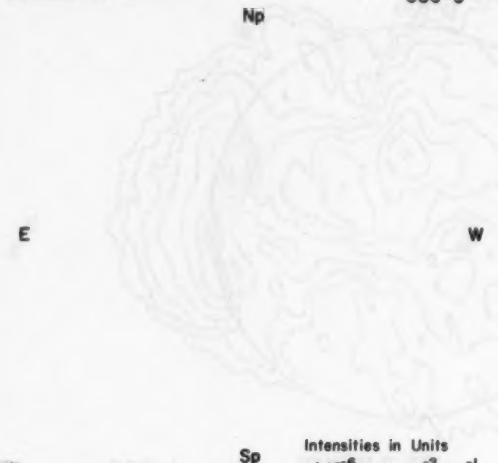
0632 UT
COUNT= 78832

73
Nov 72

NOVEMBER 27, 1972 (P= 17.57, B_o= 1.32, L_o= 302.44)

UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

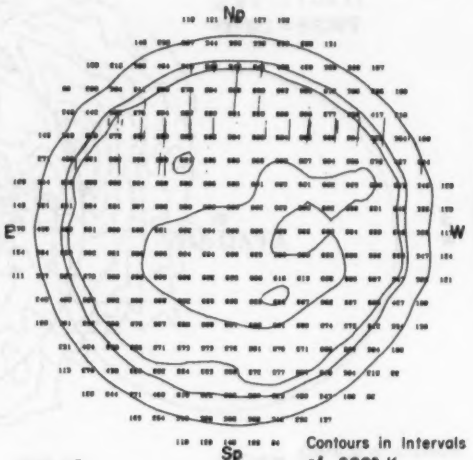


Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

1543 UT

PROSPECT HILL
AFCRL

8.6 mm

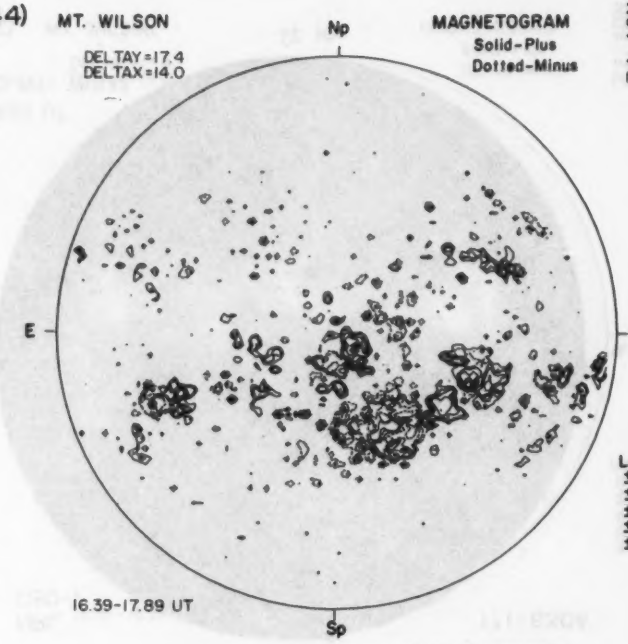


Contours in Intervals of 200° K

MT. WILSON

DELTAY=17.4
DELTAX=14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

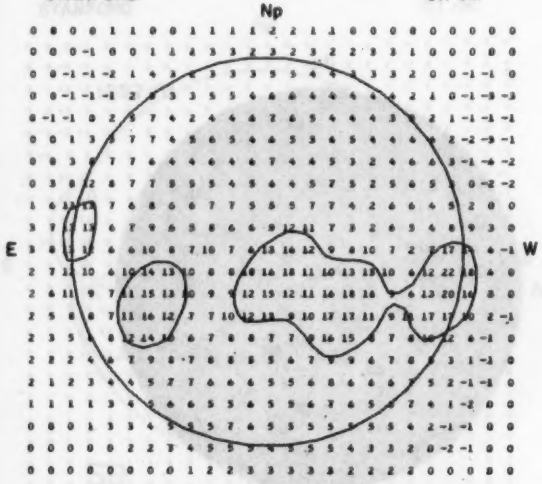


Levels
±5
±10
±20
±40
±80

16.39-17.89 UT

STANFORD

9.1 cm

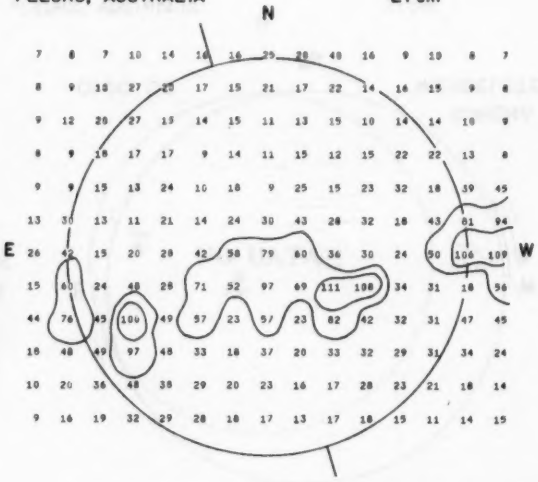


Brightness Unit 5,000° K

20-21 UT

FLEURS, AUSTRALIA

21 cm

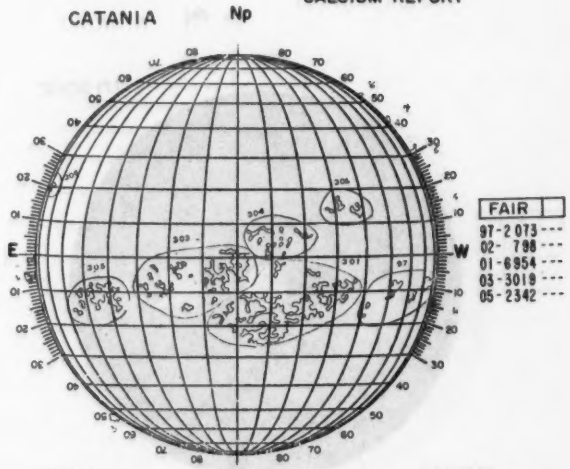


Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

02-03 UT

CALCIUM REPORT

CATANIA



FAIR

97-2073
02- 798
01-6954
03-3019
05-2342

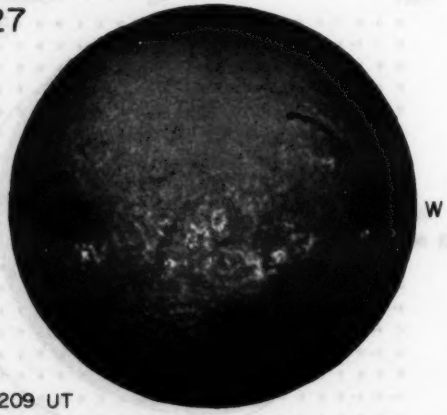
1010 UT

RAMEY AFB

27

Np

Hα



E

W

Sp

1209 UT

BOULDER

Np

NO DATA

E

W

Sp

SUNSPOTS

NRL

OSO-7

Np

WHITE-LIGHT

CORONA

E

W

Sp

1914 UT

CORONA

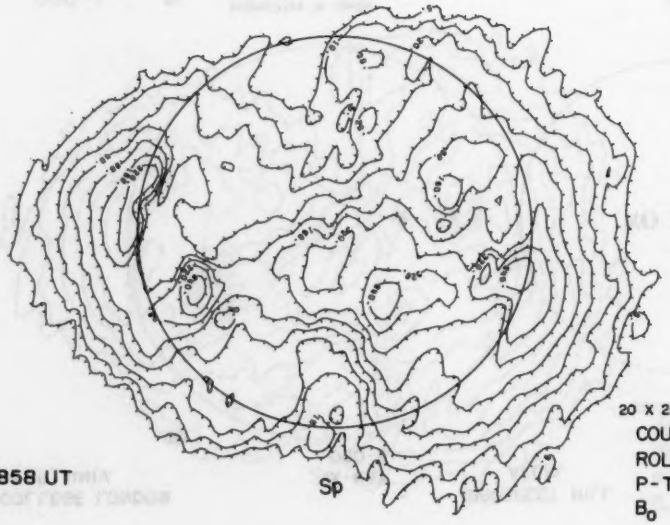
NASA GSFC

OSO-7

Np

FE XV

284A



E

W

Sp

0858 UT

20 X 20 ARCSEC APERTURE

COUNT = 107269

ROLL = 102.6°

P-TH = 7.13

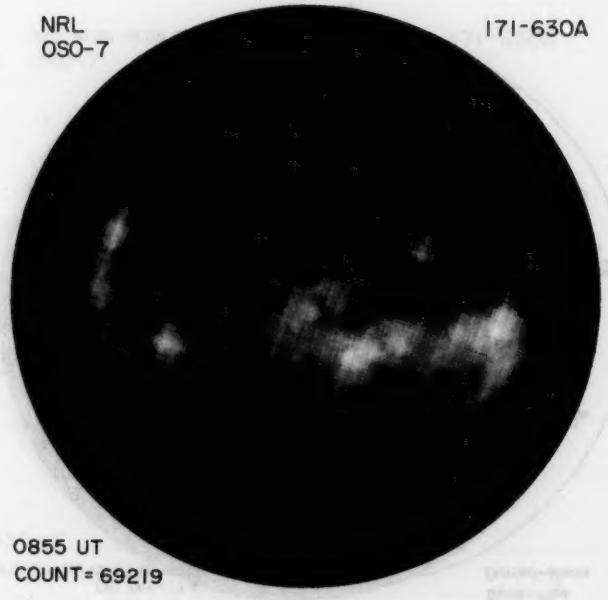
B_o = 1.28

Np

NRL

OSO-7

171-630A



E

W

Sp

0855 UT

COUNT= 69219

75

Nov 72

NOVEMBER 28, 1972 (P= 17.21, B_o = 1.20, L_o = 289.26)

UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

Np

E W

Sp

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

8.6 mm

Np

E W

NO DATA

Sp

Contours in Intervals of 200° K

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 17.4
DELTAX = 14.0

Np

E W

Sp

16.58-18.06 UT

Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm

Np

E W

Sp

Brightness Unit 5,000° K

20-21 UT

FLEURS, AUSTRALIA

21 cm

N

E W

S

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

02-03 UT

McMATH-HULBERT

CALCIUM REPORT

Np

E W

Sp

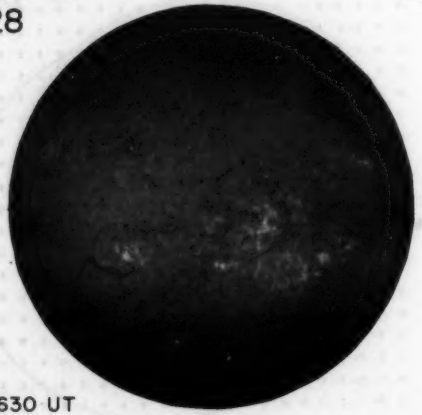
1745 UT

POOR	M
16 - 0800 - 2.5	
18 - 4000 - 3.0	
18 - 1200 - 2.5	
24 - 0700 - 2.5	
25 - 1500 - 3.0	
26 - 0500 - 3.0	

BOULDER
28

Np

Hα



E

W

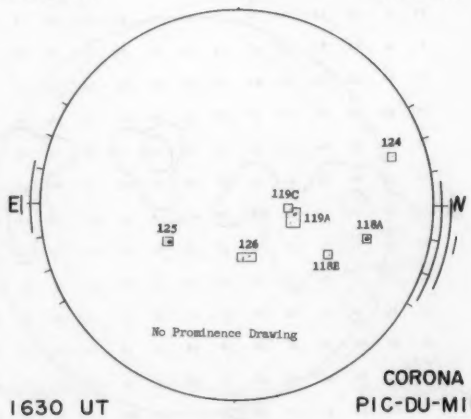
1630 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

1630 UT

CORONA
PIC-DU-MIDI

Sp

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

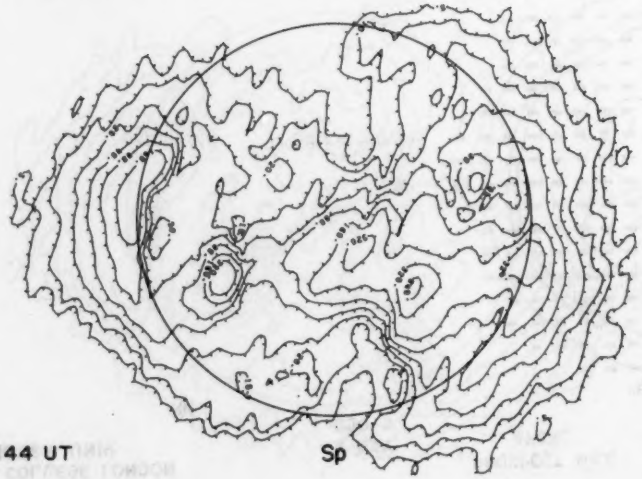
W

1536 UT

Sp

NASA GSFC
OSO-7

Np



E

W

0144 UT

Sp

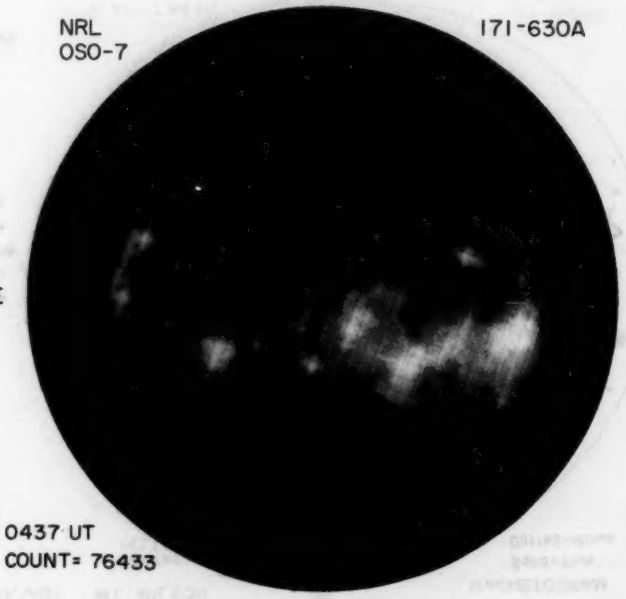
FE XV
284A

20 x 20 ARCSEC APERTURE
COUNT = 66374
ROLL = 103.0°
P-TH = 7.15
B_0 = 1.19

Np

NRL
OSO-7

171-630A



E

W

0437 UT
COUNT= 76433

Sp

77
Nov 72

NOVEMBER 29, 1972 (P= 16.84, B_o= 1.07, L_o= 276.08)

78 Nov 72

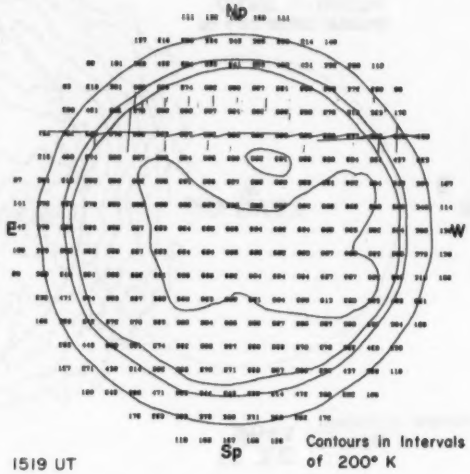
UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

8.6 mm



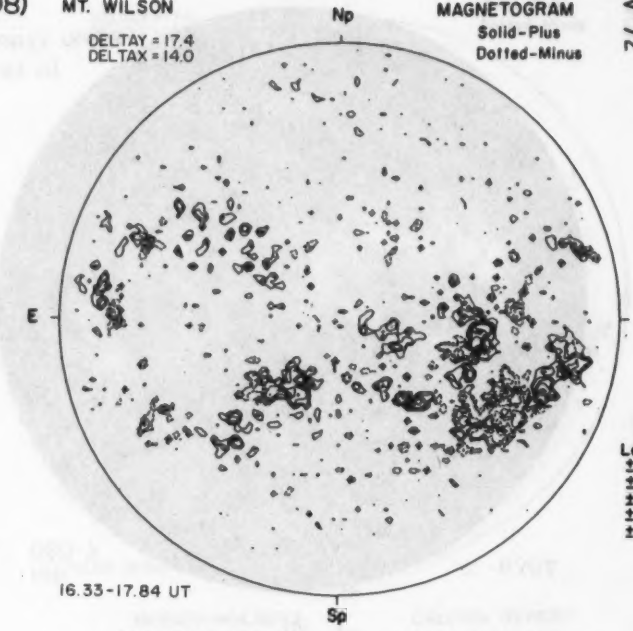
1519 UT

Contours in Intervals of 200° K

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 17.4
DELTAX = 14.0

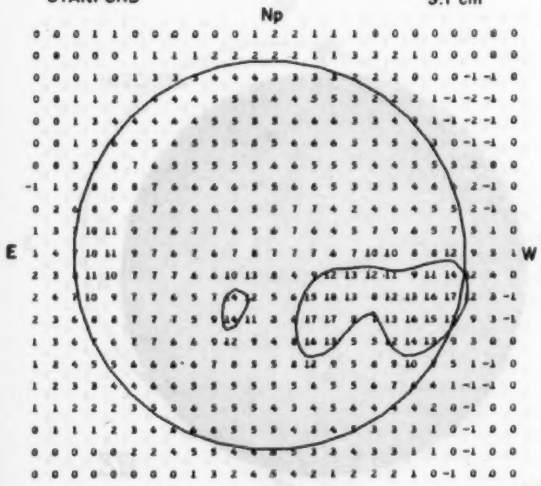


Levels
±5
±10
±20
±40
±80

16.33-17.84 UT

STANFORD

9.1 cm

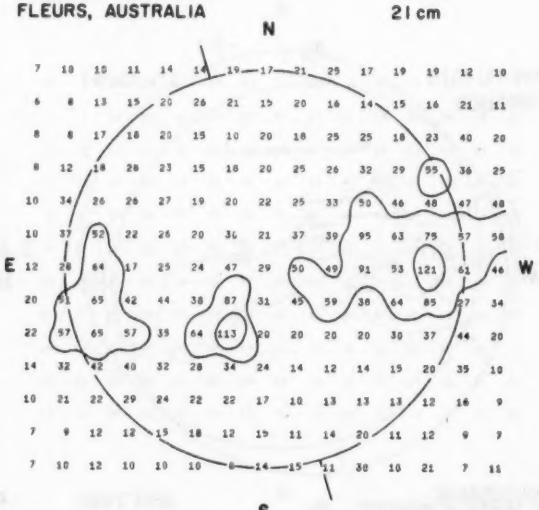


Brightness Unit 5,000° K

20-21 UT

FLEURS, AUSTRALIA

21 cm

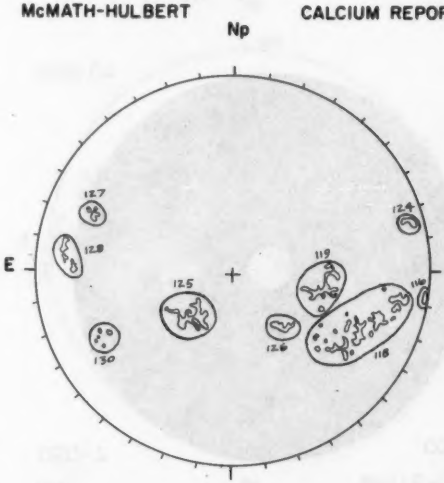


Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

02-03 UT

McMATH-HULBERT

CALCIUM REPORT



POOR	M
18 - 3600	-3.0
19 - 1500	-2.5
24 - 0900	-2.5
25 - 1600	-3.0
26 - 0600	-3.0

1430 UT

20-21 UT

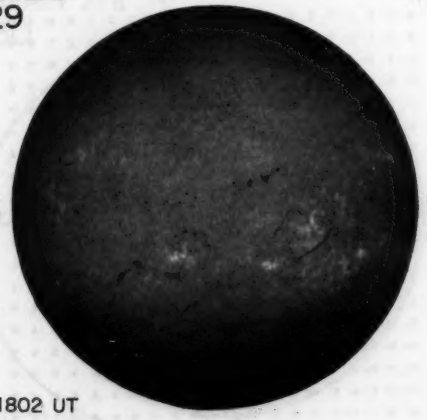
02-03 UT Brightness Unit 1,700° K

1430 UT

BOULDER
29

Np

Hα



E

W

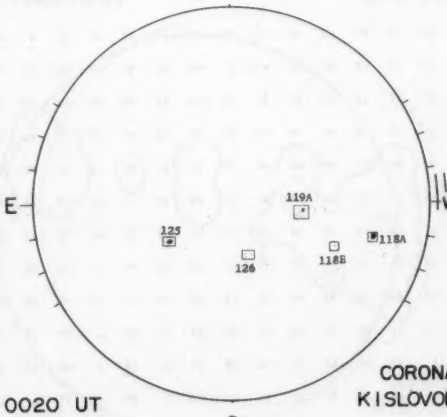
Sp

1802 UT

CULGOORA

Np

SUNSPOTS



E

W

CORONA
KISLOVODSK

0020 UT

Sp

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

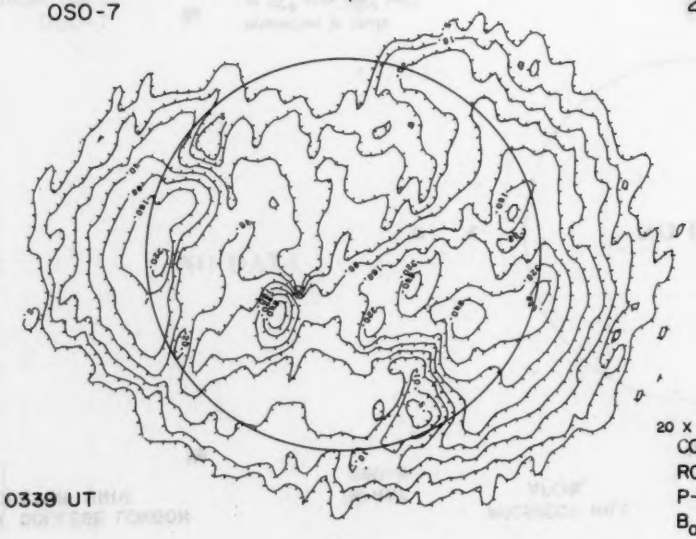
W

2203 UT

Sp

NASA GSFC
OSO-7

Np



W

FE XV
284A

20 X 20 ARCSEC. APERTURE
COUNT = 94007
ROLL = 104.0°
P-TH = 7.17
B_0 = 1.05

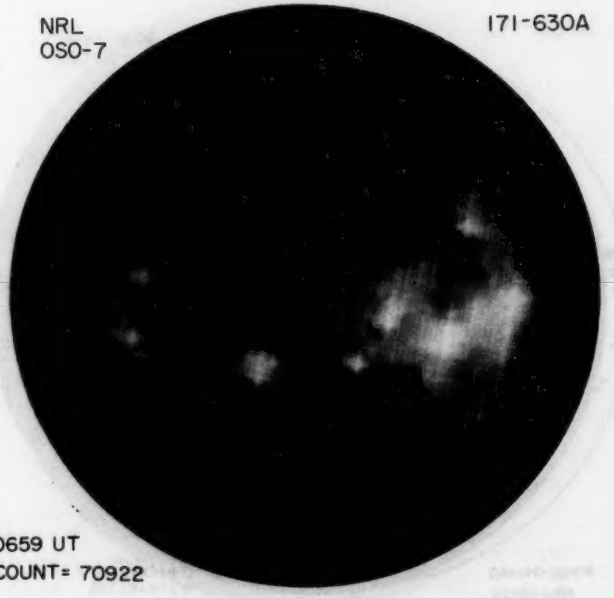
0339 UT

Sp

Np

NRL
OSO-7

171-630A



E

W

0659 UT
COUNT= 70922

Sp

79
Nov 72

NOVEMBER 30, 1972 (P= 16.46, B_o= 0.94, L_o= 262.90)

UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

Np

E W

Sp

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

8.6 mm

Np

E W

NO DATA

Sp

Contours in Intervals of 200° K

MT. WILSON

DELTAY=17.4
DELTAX=14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

Np

E W

Sp

16.87-18.38 UT

Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm

Np

E W

Sp

20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

N

E W

S

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT

Np

E W

Sp

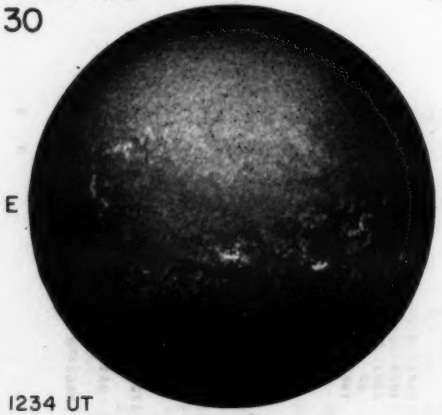
1530 UT

FAIR	M
18	-3000 -2.5
19	-1200 -2.5
25	-1400 -2.5
26	-0800 -3.0

RAMEY AFB
30

Np

Hα



E

W

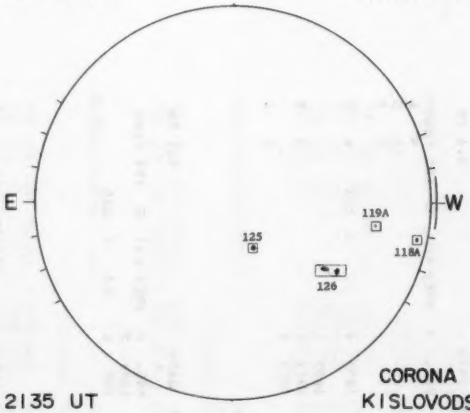
Sp

1234 UT

CULGOORA

Np

SUNSPOTS



E

W

Sp

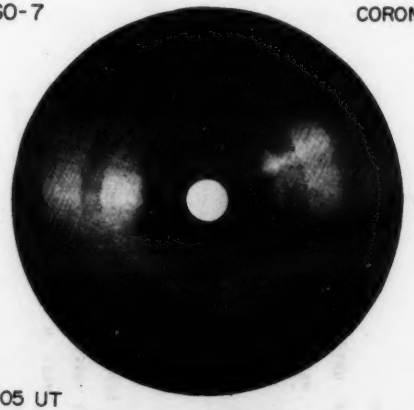
2135 UT

CORONA
KISLOVODSK

NRL
OSO-7

Np

WHITE-LIGHT
CORONA



E

W

Sp

1805 UT

NASA GSFC
OSO-7

Np

FE XV
284A

NO DATA

E

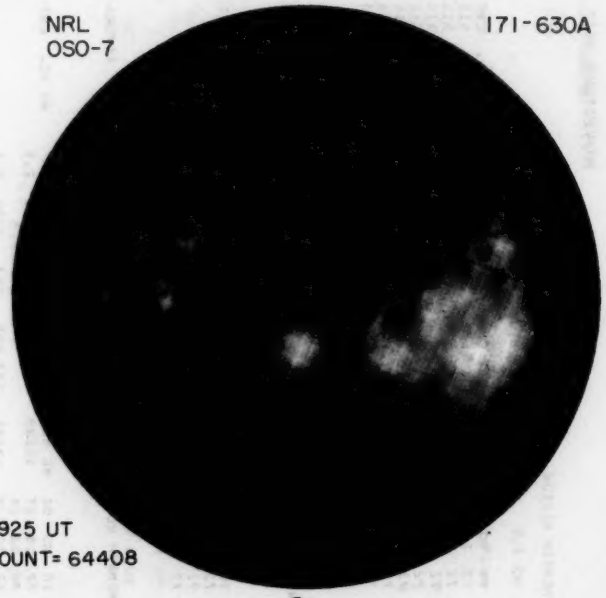
W

Sp

Np

NRL
OSO-7

171-630A



E

W

Sp

0925 UT
COUNT= 64408

81
Nov 72

REGIONS OF SOLAR ACTIVITY

NOVEMBER 1972

MCMATH REGION 12101 CMP DATE 1.6

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
72	10	29	12101	S10	E38	278	500	2.5
72	10	30	12101	S10	E23	278	700	2.0
72	10	31						
72	11	1						
72	11	2	12101	S11	W15	276	600	2.5
72	11	3	12101	S11	W28	278	700	2.5
72	11	4						
72	11	6	12101	S12	W70	281	300	1.0

SUNSPOT DATA 9.1 CM

MW NO.	LAT	CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
19031	S10	E35	277	(AP)	2					
19031	S11	E23	279	(BP)	3				6	3
19031	S10	E06	279	(BP)	2	10	12	BXO		
19031	S10	W03	278	(BF)	2					
19031	S10	W16	278	(BP)	2	10	2	BXO		
19031	S13	W39	284	(AP)	2					
19031	S13	W48	284	(AP)	2					

MCMATH REGION 12098 CMP DATE 2.8 RETURN OF REGION 12057 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
72	10	27	12098	N16	E71	272	400	1.0
72	10	29	12098	N19	E44	272	300	1.0
72	10	30	12098	N20	E28	273	300	1.5

SUNSPOT DATA 9.1 CM

MW NO.	LAT	CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX

MCMATH REGION 12099 CMP DATE 2.5 RETURN OF REGION 12059 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
72	10	27	12099	S07	E80	263	1200	2.0
72	10	28						
72	10	29	12099	S07	E53	263	1300	2.5
72	10	30	12099	S07	E36	265	900	2.0
72	10	31						
72	11	2	12099	S07	W03	264	1100	2.5
72	11	3	12099	S07	W13	263	1300	3.0
72	11	5						
72	11	6	12099	S07	W55	266	1500	2.5
72	11	8						

SUNSPOT DATA 9.1 CM

MW NO.	LAT	CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
									9	4
									11	5
									5	2
19034	S09	E18	267	(AP)	2	10	8	BXI	4	2
19036	S08	W15	260	(AP)	1					
19036	S09	W39	260	(AF)	1				3	2
19036	S08	W52	262	(AF)	1					
									7	3

MCMATH REGION 12103 CMP DATE 3.2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
72	10	30	12103	N12	E51	250	300	2.5
72	10	31						
72	11	2	12103	N13	E07	254	800	3.5
72	11	3	12103	N13	W03	253	700	3.5
72	11	6	12103	N13	W43	254	500	2.5

SUNSPOT DATA 9.1 CM

MW NO.	LAT	CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
19033	N11	E51	251	(BP)	2					
19033	N11	E33	252	(BP	1	10	2	BXO		

MCMATH REGION 12105 CMP DATE 3.9 RETURN OF REGION 12060 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
72	10	29	12105	S20	E72	244	400	1.0
72	11	3	12105	S17	E04	246	700	1.5
72	11	4						
72	11	5						
72	11	6	12105	S15	W36	247	700	2.0
72	11	8						
72	11	9						

SUNSPOT DATA 9.1 CM

MW NO.	LAT	CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
19038	S12	W11	247	(BF)	2					
19038	S12	W26	247	(BP)	2					
19038	S12	W42	252	(AP)	3	0	1	AXX		
19038	S12	W70	252	AP	0	0	2	AXX		
19038	S13	W78	248	(AF)	2				5	2

MCMATH REGION 12107 CMP DATE 5.8

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
72	11	6	12107	S23	W11	222	100	1.5

SUNSPOT DATA 9.1 CM

MW NO.	LAT	CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX

MCMATH REGION 12104 CMP DATE 7.0 RETURN OF REGION 12080 & 12081 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
72	11	2	12104	N20	E55	206	700	2.0
72	11	3	12104	N20	E43	207	400	2.0
72	11	5						
72	11	6	12104	N20	E05	206	400	2.0

SUNSPOT DATA 9.1 CM

MW NO.	LAT	CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
									3	1

Note: When there is only one side of the parenthesis around the magnetic type of sunspot it means that only half of the sunspot group was measured. The parenthesis is on whichever half was measured, either the leader or the follower.

REGIONS OF SOLAR ACTIVITY

NOVEMBER 1972

CATANIA REGION 284 CMP DATE 7.2

				CALCIUM PLAGE DATA				SUNSPOT DATA							9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT FLUX
72	11	9						19039	N05 W31	201	(BF	2	10	3	AXX	
72	11	10		N05 W42	203	989		19039	N05 W47	202	(B)	4	30	16	CRO	
72	11	11		N04 W56	205	2170		19039	N05 W60	200	B	0	170	14	DAI	9 5
72	11	12		N05 W75	205	2159		19039	N05 W73	203	(BF)	4				
72	11	13		N04 W84	206	4728		19039	N05 W86	203		0				3 1

MCMATH REGION 12108 CMP DATE 8.7

				CALCIUM PLAGE DATA				SUNSPOT DATA							9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT FLUX
72	11	6	12108	S28 E28	183	100	1.0									

MCMATH REGION 12109 CMP DATE 9.9 RETURN OF REGION 12072 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA							9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT FLUX
72	11	6	12109	N07 E44	167	400	1.5									

CATANIA REGION 282 CMP DATE 12.1

				CALCIUM PLAGE DATA				SUNSPOT DATA							9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT FLUX
72	11	07		N14 E63	138	498										
72	11	08		N13 E50	138	1152										
72	11	09		N11 E35	140	1182										
72	11	10		N12 E24	137	1127										

MCMATH REGION 12110 CMP DATE 12.5 RETURN OF REGION 12082 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT FLUX
72	11	6	12110	S06 E78	133	400	1.0									

CATANIA REGION 286 CMP DATE 13.3

				CALCIUM PLAGE DATA				SUNSPOT DATA							9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT FLUX
72	11	09		N06 E52	123	871										
72	11	10		N08 E42	119	343										
72	11	11		N07 E28	121	514										
72	11	12		N08 E18	117	716										
72	11	13		N08 W01	123	1279										
72	11	14		N08 W16	125	1478										
72	11	15		N07 W31	127	1356										
72	11	16		N09 W41	124	2259										
72	11	17		N09 W55	125	2470										
72	11	18		N08 W68	117	1301										

CATANIA REGION 287 CMP DATE 15.0

				CALCIUM PLAGE DATA				SUNSPOT DATA							9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT FLUX
72	11	09		S19 E74	101	1176										
72	11	10		S18 E67	94	1241										
72	11	11		S18 E50	99	1480										
72	11	12		S19 E33	102	1206										
72	11	13		S18 E21	101	1821										
72	11	14		S18 E08	101	1529										
72	11	15		S18 W03	99	909										
72	11	16		S18 W18	101	1814										
72	11	17		S18 W32	102	2501										
72	11	18		S17 W42	99	2433										
72	11	19		S16 W54	97	2607										
72	11	20		S17 W68	90	1698										

REGIONS OF SOLAR ACTIVITY

NOVEMBER 1972

CATANIA REGION 292 CMP DATE 16.0

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
72	11	13		N17 E39	83	1345	
72	11	14		N16 E26	83	904	
72	11	15		N18 E10	86	744	
72	11	16		N18 W05	88	1120	

SUNSPOT DATA 9.1 CM

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
	N17 E28				0	1	AXX		

MCMATH REGION 12111 CMP DATE 17.1 RETURN OF REGION 12079 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
72	11	9					
72	11	11					
72	11	12					
72	11	13					
72	11	14					
72	11	20	12111	S06 W47	71	1300	2.0
72	11	21	12111	S06 W60	71	1000	2.0
72	11	22	12111	S06 W75	73	600	1.0

SUNSPOT DATA 9.1 CM

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
								3	1
19040	S04 E69	71	AP	0	40	1	HSX		
19040	S04 E56	74	(AP)	3					
19040	S04 E42	75	(AP)	3					
	S02 E24				10	5	AXX		

MCMATH REGION 12112 CMP DATE 18.6

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
72	11	16					
72	11	20	12112	N07 W27	51	200	1.5
72	11	21	12112	N07 W40	51	200	1.0

SUNSPOT DATA 9.1 CM

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
	N09 E26				0	5	AXX		

MCMATH REGION 12120 CMP DATE 18.7

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
72	11	21	12120	N20 W40	51	100	1.0

SUNSPOT DATA 9.1 CM

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX

MCMATH REGION 12113 CMP DATE 18.9 RETURN OF REGION 12085 ROTATION 5

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
72	11	20	12113	S05 W23	47	800	2.0
72	11	21	12113	S05 W37	48	900	2.0
72	11	22	12113	S05 W50	48	1000	1.5
72	11	23	12113	S05 W64	51	800	1.5

SUNSPOT DATA 9.1 CM

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX

MCMATH REGION 12114 CMP DATE 19.0 RETURN OF REGION 12086 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
72	11	11					
72	11	12					
72	11	13					
72	11	14					
72	11	15					
72	11	16					
72	11	17					
72	11	18					
72	11	18					
72	11	19					
72	11	19					
72	11	20	12114	S18 W22	46	2500	3.0
72	11	20					
72	11	21	12114	S17 W37	48	2300	3.5
72	11	21					
72	11	22	12114	S17 W50	48	2300	2.5
72	11	22					
72	11	23	12114	S17 W63	50	2800	2.5
72	11	23					
72	11	24	12114	S15 W76	48	1200	2.5
72	11	24					
72	11	25					

SUNSPOT DATA 9.1 CM

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
19041	S15 E84	56	AP	0	70	2	HSX	11	5
19041	S15 E71	59	(AP)	4					
19041	S14 E59	58	(AP)	5				13	6
	S11 E43				250	6	HSX	14	7
								10	5
	S11 E22				260	16	CAI	11	6
								7	4
19041	S14 W09	56	(AP)	5				11	6
19043	S18 E03	44	(AF)	3					
19043	S17 W08	45	(BP)	3	10	13	BXO		
19041	S14 W19	56	(AP)	5	160	9	HSX	9	5
19043	S17 W21	43	B	0				10	5
19041	S14 W32	54	AP	0					
19043	S16 W35	46	(BP)	5	60	12	CAO	12	7
19041	S13 W45	56	(AP)	5	160	1	HSX		
19043	S15 W49	46	(BP)	4	60	11	CAO	12	6
19041	S12 W58	55	(AP)	4	150	1	HSX		
19043	S14 W61	47	(BP)	3	70	8	CSO	12	7
19041	S12 W68	54	(AP)	4	150	1	HSX		
19043	S13 W76	49	(AP)	3	50	4	CSO	10	6
19041	S12 W82	55	(AP)	3	110	1	HSX		
								5	3

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MCMATH REGION 12121 — CMP DATE 20.6 — RETURN OF REGION 12089* — ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
72	11	21	12121	S17 W15	26	100	1.0

SUNSPOT DATA — 9.1 CM

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX

MCMATH REGION 12122 — CMP DATE 21.4

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
72	11	23	12122	S20 W29	16	100	1.0

SUNSPOT DATA — 9.1 CM

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX

MCMATH REGION 12123 — CMP DATE 22.0

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
72	11	23	12123	S18 W21	8	300	2.5
72	11	24	12123	S16 W38	10	200	2.5

SUNSPOT DATA — 9.1 CM

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
19048	S16 W24	10	(BP)	2	0	4	BXO		
19048	S16 W38	11	AP	0	0	2	AXX		

MCMATH REGION 12115 — CMP DATE 22.6 — RETURN OF REGION 12090 — ROTATION 3

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
72	11	19					
72	11	20	12115	S10 E24	0	1200	3.0
72	11	21	12115	S10 E12	-0	1100	3.0
72	11	22	12115	S09 W03	1	1200	3.5
72	11						
72	11	23	12115	S08 W18	5	1400	3.5
72	11						
72	11	24	12115	S06 W34	6	1400	3.5
72	11	25					
72	11	26					
72	11	27					

SUNSPOT DATA — 9.1 CM

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
19044	S09 E35	2	(BP	3	0	4	AXX		
19044	S09 E20	2	BP	0					
19044	S09 E07	4	(BP)	4	50	12	CAO	4	2
19044	S08 W08	5	(BP)	4	20	28	BXI	7	4
	S04 W09				10	12	BXI		
19047	S10 W27	13	(AP)	1				14	8
19044	S06 W20	6	(B)	4	80	66	CSI		
19044	S06 W35	8	(BF)	4	220	43	EAI	18	10
19044	S06 W50	10	(BF)	4	270	24	ESO	12	6
19044	S06 W64	10	(BF)	5				11	6
19044	S07 W77	10	(BF)	4				7	4

MCMATH REGION 12116 — CMP DATE 23.7

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
72	11	18					
72	11	19					
72	11	20	12116	S06 E40	345	1300	3.5
72	11	21	12116	S06 E27	345	1300	3.5
72	11	22	12116	S06 E14	345	1000	3.0
72	11	23	12116	S06 E01	346	1000	3.0
72	11	24	12116	S06 W14	346	1200	3.0
72	11	25					
72	11	28	12116	S07 W70	349	800	2.5
72	11	29	12116	S08 W82	350	900	1.0

SUNSPOT DATA — 9.1 CM

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
19042	S09 E60	348	(BP)	5					
19042	S09 E51	347	(BP)	4	50	6	DSO		
19042	S09 E40	343	BP	0				8	4
19042	S08 E24	348	(BP)	5	30	13	CRO	8	4
19042	S08 E11	347	(BP)	4	20	19	BXO	5	3
19042	S07 W02	348	(BP)	2	10	15	BXO	6	3
19042	S07 W12	345		0	0	13	BXO	3	2
	S04 W27				10	7	BXO		
								4	2
								6	3

MCMATH REGION 12117 — CMP DATE 23.9 — RETURN OF REGION 12093 — ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
72	11	20	12117	N23 E42	343	500	1.5
72	11	21	12117	N23 E28	344	300	1.5
72	11	22	12117	N23 E15	344	200	1.0
72	11	23	12117	N23 E04	343	300	1.0
72	11	24	12117	N23 W12	344	300	1.0

SUNSPOT DATA — 9.1 CM

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX

MCMATH REGION 12124 — CMP DATE 24.6

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
72	11	24	12124	N16 W02	334	100	2.5
72	11	26					
72	11	27					
72	11	28	12124	N16 W54	333	700	2.5
72	11	29	12124	N15 W66	334	900	2.5
72	11	30	12124	N15 W79	333	500	2.0

SUNSPOT DATA — 9.1 CM

MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
19052	N15 W25	331	(B)	3					
19052	N14 W39	332	(BP)	2					
19052	N15 W51	331	(BP)	2	0	2	AXX		

*An asterisk beside the "Return of Region" number indicates that the new region is only part of the area of the old region.

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MCMATH REGION 12116 CMP DATE 26.0 RETURN OF REGION 12094 ROTATION 3

CALCIUM PLAGE DATA								SUNSPOT DATA								9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
72	11	19						19045	S10 E76	322	AP	0	70	1	HSX		
72	11	20	12118	S15 E69	316	2400	3.0	19045	S10 E63	320	AP	0					
72	11	21	12116	S15 E57	315	2700	3.5	19045	S10 E50	322	(AP)	5	120	1	HSX	11	6
72	11	22	12118	S14 E44	315	3200	3.0	19045	S10 E39	319	(AP)	5	60	4	HSX	11	6
72	11	23	12118	S14 E30	317	4000	3.0	19045	S10 E24	322	(BY)	3	80	24	CSI	11	6
72	11	24	12118	S14 E15	317	4500	3.0	19045	S09 E12	321	(BP)	5	80	12	CSO	8	5
72	11								S10 E18				0	1	AXX		
72	11								S10 E17				0	1	AXX		
72	11	25						19045	S09 W03	323	(AP)	5	70	10	CSO	7	4
72	11							19050	S15 E11	309		0	0	3	BXO		
72	11								S13 E04				0	1	AXX		
72	11	26						19045	S09 W16	322	(AP)	5				6	3
72	11							19050	S15 W02	308	BF)	2					
72	11	27						19045	S09 W34	327	(AP)	5				5	3
72	11	28	12118	S15 W36	315	4000	3.0	19045	S09 W42	322	(AP)	5	40	1	HSX	5	3
72	11							19050	S16 W27	307	(AF)	1	0	1	AXX		
72	11	29	12118	S15 W47	315	3600	3.0	19045	S10 W55	322	(AP)	4				5	3
72	11	30	12118	S15 W60	314	3000	2.5	19045	S09 W72	322	(AP)	2				6	3
72	12	01	12118	S18 W70		3400	2.5	19045	S09 W82		(AP)	2	0	1	AXX	6	3

MCMATH REGION 12119 CMP DATE 27.4 RETURN OF REGION 12106 ROTATION 2

CALCIUM PLAGE DATA								SUNSPOT DATA								9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
72	11	20	12119	N04 E86	299	600	1.0									10	5
72	11	21	12119	S02 E75	297	1000	2.0	19046	S03 E75	297	AP	0	80	2	HSX		
72	11	22	12119	S02 E63	296	900	2.0	19046	S03 E62	296	(AP)	5	130	2	HAX	9	5
72	11	23	12119	S03 E50	297	1400	2.0	19046	S03 E49	297	(AP)	4	160	4	HSX	7	4
72	11	24	12119	S03 E34	298	1500	2.0	19046	S02 E36	297	(AP)	5	110	6	HSX	5	3
72	11	25						19046	S02 E22	298	(AP)	4	70	8	CSO	4	2
72	11								S03 E22				0	1	AXX		
72	11							19051	S04 E23	297	(BP	2					
72	11	26						19046	S02 E11	295	(AP)	5				3	2
72	11	27						19046	S03 W04	297	(B)	4				5	3
72	11							19053	S01 W03	296	(BP	2					
72	11	28	12119	S03 W17	296	1200	2.5	19046	S04 W16	296	(AP)	3	30	7	CSO	5	3
72	11							19053	S02 W15	295	(AP)	1	0	1	AXX		
72	11	29	12119	S03 W26	294	1500	2.5	19046	S04 W29	296	(AP)	3					
72	11	30	12119	S03 W42	296	1200	2.5	19046	S03 W47	297	(AP)	2					
72	12	01	12119	S04 W55		1300	2.5	19046	S03 W56		(AP)	2	10	1	HRX		
72	12	02	12119					19046	S03 W72		AP		0	1	AXX		
72	12	03	12119	S06 W81		1000	1.0										

MCMATH REGION 12126 CMP DATE 28.4

CALCIUM PLAGE DATA								SUNSPOT DATA								9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
72	11	27						19054	S16 E09	284	(AP)	2					
72	11	28	12126	S15 W05	284	500	3.0	19054	S16 W04	284	(BP)	3	10	3	BXO		
72	11	29	12126	S15 W16	284	600	3.0	19054	S16 W16	283	(BF)	3				6	3
72	11	30	12126	S15 W29	283	800	3.0	19054	S17 W33	283	(B)	4				7	4
72	12	01	12126	S15 W42		1000	3.0	19054	S16 W43		(BP)	4	50	7	HSX	6	3
72	12	02	12126					19054	S16 W59		(B)	3	120	6	DAO	9	5
72	12	03	12126	S16 W68		1500	2.5	19054	S16 W69		(BF)	3	50	4	DAO	6	4
72	12	04	12126						S19 W78				40	3	CAO	6	4

MCMATH REGION 12131 CMP DATE 29.2

CALCIUM PLAGE DATA								SUNSPOT DATA								9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
72	12	03	12131	S11 W58	272	200	1.5										

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MCMATH REGION 12125 CMP DATE 30.6

				CALCIUM PLAGE DATA						SUNSPOT DATA								9.1 CM	
YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
72	11	24	12125	S14	E77	255	1200	2.5	19049	S13	E72	261	(AP)	3	90	2	HSX	6	3
72	11	25							19049	S13	E62	258	(BP)	3	130	7	DSO	3	1
72	11	26							19049	S12	E48	258	(BP)	5				6	3
72	11	27							19049	S12	E35	258	(AP)	5				3	2
72	11	28	12125	S14	E25	254	1500	3.0	19049	S12	E22	258	(AP)	5	70	5	HSX	4	2
72	11	29	12125	S14	E13	255	1600	3.0	19049	S12	E11	256	(BP)	4				5	3
72	11	30	12125	S14	WC1	255	1400	2.5	19049	S11	W08	258		4				4	2
72	12	01	12125	S14	W14		1200	2.5	19049	S12	W16		(BP)	4	140	1	DAO	3	2
72	12	02	12125						19049	S11	W34		(AP)	3	50	1	HSX	3	2
72	12	03	12125	S14	W40		1100	2.5	19049	S12	W44		(AP)	3	30	1	HSX		
72	12	04	12125							S13	W54				30	1	HAX		
72	12	05	12125						19049	S12	W73		AP		10	1	HRX	5	3
72	12	06	12125	S15	W80		1000	1.5											

Note:
Because of extremely bad weather conditions at McMath-Hulbert during the month of November, some of the region identifications may be subject to error. Some short-lived regions were not observed at McMath-Hulbert. Therefore, Catania observations have been used to describe some of these regions.
No calcium spectroheliograms were secured at the McMath-Hulbert Observatory on November 1, 4, 5, 7-19, 25, 26 and 27, 1972.
No sunspot observations were made at Mt. Wilson Observatory on November 7 and 14-17.

DAILY CALCIUM PLAGE INDEX

NOVEMBER 1972

YR	MO	DAY	INDEX	YR	MO	DAY	INDEX	YR	MO	DAY	INDEX
72	11	1	*	72	11	11	*	72	11	21	21.5
72	11	2	20.8	72	11	12	*	72	11	22	19.1
72	11	3	22.2	72	11	13	*	72	11	23	23.7
72	11	4	*	72	11	14	*	72	11	24	24.6
72	11	5	*	72	11	15	*	72	11	25	*
72	11	6	6.5	72	11	16	*	72	11	26	*
72	11	7	*	72	11	17	*	72	11	27	*
72	11	8	*	72	11	18	*	72	11	28	20.0
72	11	9	*	72	11	19	*	72	11	29	19.0
72	11	10	*	72	11	20	19.5	72	11	30	13.0

* NO OBSERVATIONS (McMath-Hulbert)

SOLAR X-RAYS MEASURED BY SATELLITE
SOLRAD 10 – EXPLORER 44

NOVEMBER 1972

NAVAL RESEARCH LABORATORY 1 - 8A HOURLY AVERAGES (10^{-3} ergs/cm^2/sec)

DAY	HOUR																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	0.54	0.38	0.38	0.38	0.42	0.37	4.73	1.04	0.36	0.31	0.36	0.37	0.52	0.74	0.37	0.29	0.26	0.24	0.24	0.44	0.24	0.35	0.26	0.30
2	0.28	0.23	0.24	0.19	0.38	0.33	0.32	0.63	0.39	0.25	0.62	0.27	0.95	0.37	0.22	0.21	0.32	0.40	0.24	0.21	0.19	0.19	0.40	0.20
3	0.22	0.42	0.33	0.23	0.20	0.22	0.19	0.17	0.19	0.18	0.17	0.20	5.66	2.79	0.19	0.37	0.21	0.19	0.22	0.25	0.32	0.23	0.20	0.28
4	0.37	0.24	0.44	0.26	0.26	0.29	0.26	0.22	0.23	0.19	0.19	0.17	0.26	0.18	0.20	0.17	0.18	0.16	0.19	0.17	0.18	0.18	0.15	0.14
5	0.16	0.24	0.16	0.32	0.19	0.31	0.18	0.19	0.21	0.19	0.19	0.32	0.32	0.42	0.33	0.28	0.35	0.42	0.25	0.27	0.27	0.55	0.80	0.54
6	0.29	0.29	0.32	0.38	0.27	0.36	0.43	0.28	0.22	0.22	0.21	0.23	0.19	0.17	0.16	0.15	0.14	0.17	0.13	0.12	0.13	0.10	0.11	0.11
7	0.14	0.14	0.14	0.12	0.12	0.11	0.17	0.10	0.11	0.10	0.12	0.08	0.08	0.07	0.07	0.07	0.06	0.07	0.08	0.09	0.06	0.05	0.04	0.04
8	0.03	0.04	0.03	0.04	0.03	0.04	0.06	0.04	0.04	0.04	0.05	0.10	0.05	0.04	0.04	0.04	0.04	0.03	0.04	0.04	0.04	0.03	0.03	0.03
9	0.24	0.09	0.04	0.03	0.03	0.04	0.03	0.03	0.14<	0.14<	0.12<	0.12<	0.20<	0.14<	0.13<	0.16<	0.14<	0.14<	0.04	0.04	0.04	0.03	0.05	0.03
10	0.04	0.05	0.08	0.10	0.10	0.10	0.05	0.09	0.04	0.05	0.05	0.07	0.09	0.05	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.10	0.08	0.09
11	0.13	0.09	0.13	0.08	0.04	0.05	0.07	0.08	0.24	0.25	0.14	0.11	0.08	0.08	0.11	0.08	0.08	0.07	0.11	0.07	0.09	0.07	0.04	0.07
12	0.07	0.05	0.05	0.09	0.05	0.33	0.11	0.09	0.17	0.17	0.08	0.08	0.08	0.06	0.07	0.06	0.09	0.07	0.05	0.07	0.06	0.07	0.06	0.08
13	0.09	0.05	0.05	0.08	0.05	0.06	0.09	0.07	0.08	0.08	0.05	0.05	0.05	0.07	0.06	0.05	0.07	0.10	0.04	0.04	0.04	0.04	0.07	0.05
14	0.04	0.04	0.04	0.05	0.04	0.04	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.05	0.04	0.04	0.04	0.04	0.05	0.14	0.06	0.03
15	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.07	0.04	0.04	0.04	0.04	0.03	0.04	0.04	0.04	0.03	0.03	0.04
16	0.03	0.03	0.03	0.04	0.04	0.07	0.04	0.05	0.05	0.69	0.32	0.13	0.06	0.10	0.11	0.05	0.04	0.04	0.05	0.06	0.04	0.07	0.04	0.05
17	0.05	0.04	0.04	0.05	0.44	0.33	0.13	0.09	0.07	0.05	0.06	0.05	0.08	0.07	0.05	0.06	0.05	0.05	0.08	0.14	0.07	0.08	0.05	0.05
18	0.05	0.07	0.13	0.11	0.19	0.38	0.32	0.45	0.19	0.12	0.31	0.36	0.22	0.13	0.11	0.10	0.12	0.20	0.84	0.47	0.26	0.15	0.12	0.14
19	0.15	0.21	0.15	0.14	0.14	0.15	0.18	0.13	0.15	0.16	0.20	0.18	0.15	0.18	0.21	0.17	0.14	0.14	0.18	0.16	0.17	0.11	0.18	0.23
20	0.18	0.18	0.23	0.19	0.23	0.24	0.24	0.19	0.21	0.20	0.18	0.17	0.18	0.22	0.20	0.19	0.26	0.39	0.22	0.19	0.18	0.21	0.17	0.23
21	0.16	0.33	0.20	0.17	0.18	0.15	0.17	0.17	0.22	0.19	0.23	0.19	0.15	0.48	0.24	0.19	0.47	0.40	0.31	0.21	0.18	0.16	0.14	0.15
22	0.18	0.17	0.17	0.15	0.17	0.22	0.16	0.17	3.01	1.59	2.70	0.16	0.25	0.18	0.80	0.20	0.41	0.16	0.20	1.32	1.54	0.69	0.23	0.28
23	0.22	0.25	5.48	0.33	0.22	0.26	0.21	0.47	0.63	0.26	0.27	0.23	0.23	0.24	0.54	0.72	0.58	0.24	0.21	0.34	0.32	0.28	0.19	0.28
24	0.22	0.46	0.33	0.25	0.28	0.29	0.26	0.37	0.40	0.31	0.26	0.35	3.96	4.59	1.09	0.69	0.58	0.47	0.36	0.26	0.29	0.20	0.19	0.32
25	0.25	0.24	0.27	0.21	0.22	0.20	0.29	0.53	13.4	6.12	1.70	0.75	0.62	0.35	0.38	0.34	0.30	0.35	0.24	0.28	0.29	0.44	0.41	0.38
26	0.39	0.28	0.74	0.32	0.24	2.65<	0.36<	3.23<	0.82<	0.37<	0.33<	0.20<	0.22<	0.31	0.27	0.31	0.44	0.67	0.42	0.48	0.53	0.54	0.87	1.20
27	0.68	0.50	0.45	0.36	0.27	0.15	0.12	0.12	0.23	0.18	0.18	0.16	0.39	0.61	0.34	0.19	0.09	0.09	0.10	0.14	0.08	0.10	0.24	0.15
28	0.11	0.08	0.07	0.17	8.40	2.59	0.74	0.41	0.24	0.16	0.11	0.08	0.05	0.04	0.05	0.04	0.04	0.04	0.04	0.03	0.03	0.06	0.03	0.03
29	0.04	0.11	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.06	0.04	0.04	0.06	0.09
30	0.07	0.04	0.05	0.04	0.03	0.03	0.03	0.11	0.17	0.22	0.50	0.15	0.04	0.21	0.09	0.20	0.07	0.14	0.04	0.05	0.03	0.24	0.19	0.04

VALUES MARKED WITH (<) WERE CALCULATED FROM DATA PROVIDED BY SOLRAD 9

SOLAR X-RAYS MEASURED BY SATELLITE
SOLRAD 10 – EXPLORER 44

NOVEMBER 1972

NAVAL RESEARCH LABORATORY 8 - 20A HOURLY AVERAGES (10^{-2} ergs/cm^2/sec)

DAY	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	2.54	1.62	1.56	1.62	1.61	1.54	5.15	3.67	1.49	1.46	1.43	1.51	2.26	2.42	1.50	1.37	1.36	1.23	1.32	1.63	1.26	1.38	1.28	1.36
2	1.31	1.24	1.20	1.16	1.42	1.43	1.30	1.73	1.41	1.22	1.65	1.24	2.53	1.43	1.24	1.14	1.35	1.47	1.15	1.12	1.09	1.07	1.40	1.09
3	1.09	1.44	1.37	1.17	1.11	1.12	1.12	1.14	1.05	1.08	0.96	1.04	5.46	5.45	1.04	1.23	1.19	1.05	1.02	1.07	1.19	1.05	1.04	1.18
4	1.29	1.10	1.30	1.14	1.13	1.27	1.22	1.10	1.04	1.01	0.98	0.93	1.08	0.99	1.02	1.04	0.96	0.94	0.99	0.95	0.98	0.94	0.90	0.87
5	0.86	1.02	0.87	1.01	0.94	0.99	0.94	1.02	1.09	1.01	0.99	1.12	1.25	1.49	1.36	1.32	1.37	1.48	1.21	1.18	1.18	1.55	1.74	1.55
6	1.24	1.24	1.26	1.32	1.23	1.32	1.49	1.31	1.16	1.10	1.08	1.07	1.00	0.95	0.86	0.91	0.86	0.86	0.79	0.72	0.77	0.72	0.72	0.73
7	0.73	0.75	0.78	0.72	0.71	0.73	0.74	0.65	0.67	0.60	0.62	0.56	0.56	0.51	0.47	0.54	0.46	0.46	0.51	0.54	0.46	0.46	0.39	0.40
8	0.33	0.33	0.33	0.33	0.36	0.34	0.41	0.36	0.33	0.32	0.34	0.44	0.32	0.29	0.34	0.29	0.27	0.28	0.29	0.33	0.29	0.29	0.27	0.26
9	0.51	0.46	0.35	0.33	0.32	0.28	0.28	0.26											0.33	0.33	0.33	0.33	0.36	0.33
10	0.34	0.40	0.50	0.52	0.56	0.56	0.48	0.48	0.43	0.46	0.45	0.49	0.57	0.45	0.47	0.46	0.45	0.46	0.45	0.46	0.46	0.52	0.54	0.56
11	0.63	0.57	0.66	0.54	0.51	0.60	0.53	0.54	0.71	0.86	0.72	0.68	0.62	0.58	0.63	0.57	0.56	0.55	0.65	0.55	0.56	0.55	0.53	0.56
12	0.53	0.53	0.48	0.54	0.50	0.95	0.61	0.59	0.80	0.73	0.61	0.56	0.63	0.56	0.51	0.50	0.59	0.54	0.49	0.53	0.54	0.56	0.54	0.58
13	0.60	0.52	0.47	0.56	0.50	0.56	0.58	0.56	0.57	0.57	0.50	0.52	0.46	0.53	0.48	0.47	0.49	0.55	0.46	0.46	0.46	0.46	0.50	0.49
14	0.46	0.46	0.47	0.51	0.48	0.48	0.46	0.46	0.45	0.45	0.42	0.44	0.41	0.44	0.43	0.46	0.40	0.40	0.40	0.42	0.45	0.59	0.48	0.46
15	0.35	0.33	0.33	0.36	0.40	0.35	0.40	0.38	0.39	0.39	0.37	0.38	0.50	0.42	0.35	0.35	0.39	0.36	0.34	0.38	0.35	0.34	0.33	0.33
16	0.34	0.39	0.40	0.43	0.48	0.49	0.47	0.45	0.46	1.68	1.15	0.80	0.60	0.56	0.59	0.51	0.49	0.46	0.46	0.46	0.46	0.46	0.46	0.46
17	0.48	0.46	0.46	0.47	1.11	1.02	0.74	0.62	0.58	0.51	0.56	0.52	0.60	0.58	0.55	0.56	0.50	0.50	0.55	0.65	0.59	0.58	0.59	0.59
18	0.58	0.59	0.64	0.65	0.81	1.13	1.12	1.11	0.94	0.81	1.14	1.20	1.05	0.85	0.82	0.72	0.81	0.88	1.75	1.49	1.14	0.89	0.86	0.86
19	0.86	0.99	0.91	0.88	0.86	0.90	0.91	0.87	0.89	0.92	1.05	0.98	0.96	0.98	1.02	1.02	0.91	0.90	0.99	0.88	0.94	0.86	0.91	1.06
20	0.99	0.96	1.10	1.07	1.11	1.14	1.13	1.09	1.15	1.10	1.07	1.03	1.04	1.16	1.11	1.14	1.27	1.39	1.18	1.12	1.06	1.13	1.07	1.09
21	0.98	1.20	1.09	1.02	1.04	1.00	1.01	0.97	1.06	1.07	1.07	1.09	0.97	1.39	1.14	1.09	1.46	1.59	1.39	1.09	1.04	0.99	0.96	0.93
22	1.00	0.97	0.97	0.97	0.95	1.08	0.99	1.05	3.33	3.13	3.66	0.99	1.15	1.05	1.77	1.04	1.55	1.01	1.08	2.33	3.89	2.73	1.25	1.32
23	1.24	1.24	4.41	1.44	1.23	1.29	1.25	1.76	2.37	1.41	1.35	1.26	1.27	1.23	1.81	1.64	1.69	1.26	1.20	1.37	1.49	1.36	1.20	1.35
24	1.25	1.73	1.44	1.30	1.32	1.37	1.35	1.50	1.52	1.44	1.25	1.42	4.37	6.77	3.52	2.96	2.43	2.16	1.63	1.32	1.30	1.18	1.12	1.32
25	1.24	1.26	1.38	1.23	1.24	1.15	1.31	1.89	13.8	8.84	4.38	2.83	2.43	1.45	1.50	1.47	1.40	1.38	1.26	1.30	1.36	1.48	1.53	1.51
26	1.49	1.33	2.47	1.43	1.36									1.42	1.34	1.33	1.79	2.60	1.61	1.63	1.61	2.08	2.96	3.12
27	2.72	1.76	1.79	1.60	1.45	1.17	1.01	0.96	1.21	1.09	1.05	0.99	1.13	1.56	1.31	1.09	0.91	0.87	0.87	0.93	0.87	0.87	1.05	1.03
28	0.90	0.81	0.80	0.83	9.12	5.67	2.45	1.32	1.07	0.88	0.82	0.75	0.69	0.70	0.65	0.64	0.62	0.61	0.61	0.59	0.61	0.73	0.59	0.70
29	0.60	0.64	0.59	0.59	0.54	0.52	0.55	0.50	0.46	0.46	0.46	0.46	0.46	0.47	0.48	0.46	0.48	0.53	0.53	0.61	0.61	0.68	0.63	0.77
30	0.66	0.60	0.61	0.58	0.51	0.56	0.53	0.63	0.73	0.82	1.14	0.81	0.60	0.73	0.71	0.78	0.59	0.68	0.59	0.64	0.57	1.09	0.90	0.64

SOLAR X-RAYS BY SATELLITE
SOLRAD 10 - EXPLORER 44

NOVEMBER 1972

NAVAL RESEARCH LABORATORY

OUTSTANDING EVENTS

DAY	START TIME	0.5-3A FLUX XE-5	PEAK TIME	1-8A FLUX XE-4	PEAK TIME	8-20A FLUX XE-3	PEAK TIME	END TIME	COMMENTS
1	0640	102.00	0643	129.00	0643	88.80	0645	0657	
3	1246	169.00	1248	212.00	1247	163.00	1251	1307	
22	0801E	26.30D	0806E	212.00	0803	133.00	0805	0813	
22	0934	0.00D	0934D	53.00	0936	59.20	0935	0941	
22	1009	23.40	1012	98.40	1013	74.00	1013	1017	
22	1916	11.70	1917	53.00	1917	59.20	1916	1921	
23	0204	67.80	0205	144.00	0205	104.00	0206	0214	
24	1238	38.00	1252	159.00	1255	118.00	1254	1309D	
25	0836E	169.00D	0836E	489.00	0837	296.00	0838	0933	
25	1028	8.76	1029	45.40	1030	59.20	1028	1034	
26	0705	10.00	0707	41.00	0724	23.00	0726	0738	OBSERVED BY SOLRAD 9
26	0513	27.00	0515	65.00	0516	27.00	0521	0532	OBSERVED BY SOLRAD 9
28	0404	17.50	0413	114.00	0412	118.00	0413	0518	

SUDDEN IONOSPHERIC DISTURBANCES

NOVEMBER 1972

DAY	UNIVERSAL TIME				WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE							KNOWN FLARE	McMATH REGION
	START	END	MAX	IMP		SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD		
01	0237	0451	0310	1-	1				1				0237	12094
01	0636	0655	0642	1	5			1	2		1		0636	X-RAY
01	1225	1245	1232	1+	3		1		1				1229	12094
02	2322	2344	2324	1-	1				1				2325E	12094
03	1245	1335	1252	2	5	3	1	5	3		3		1242	12094
18	1350	1515	1450	1+	1					1	1		1350	12112
22	0801	0835	0807	1	5	1			3		2		0757	12115
22	0933	1000	0909	1+	3				2		1		0931	12118
22	1010	1040	1020	1	3	1			2		1		1010	12115
22	1422	1515	1429	1-	1				1		1		1421	12115
22	1911	1947	1922	1-	5				1	1	8		1911	12115
23	0202	0312	0208	1	3	2	1		2	1	1		0157	12115
24	1230	1400	1300	2-	3			2	3		1		1232	12115
25	0819	0855	0830	2-	5	3		2	3		3		0818	12115
26	0510	0608	0519	1-	3				2	1	1		0515E	12115
26	1940	2000	1950	1	1					1	1		1945	12128
28	0359	0620	0423	1-	3				2				0358	12116

STATIONS REPORTING FOR NOVEMBER 1972

AAVSO (A1, A5, A17, A22, A26, A29, A31, A34,)(SEA) (A1, A4, A19, A21, A28, A30, A31, A33, A35, A36, A37)(SES)
ATTU (LORAN-C) (TT) (LF-SPA, SES)
BOULDER (BO) (SCNA, SEA)
CAPE RACE (LORAN-C) (CP) (LF-SPA, SES)
DANA (LORAN-C) (DN) (LF-SPA, SES)
DARMSTADT (DA) (SWF)
ENKOPING (SW) (SWF)
HAWAII (HA) (SFD)
HERSTMONCEUX (HC) (SEA)
HIRAISO (HI) (SWF)
HOBART (TA) (SEA)
HOKKAIDO (LORAN-C) (HO) (LF-SPA, SES)
HUANCAYO (HU) (SWF)
INUBO (IN) (SPA)
JUPITER (LORAN-C) (JP) (LP-SPA, SES)
KUHLUNGSBORN (KU) (SPA, SEA)
MANILA (MA) (SWF, SCNA, SPA)
MARCUS (LORAN-C) (MR) (LF-SPA, SES)
MCMATH (MC) (SWF, SCNA)
NANTUCKET (LORAN-C) (NT) (LF-SPA, SES)
NEUSTRELITZ (NU) (SWF, SCNA)
NEW DELHI (ND) (SWF, SES)
NORWAY (LORAN-C) (NW) (LF-SPA, SES)
PANSKA VES (PU) (SWF, SEA)
POITIERS (PO) (SEA)
PRESTON (LO) (SEA)
SANDUR (LORAN-C) (SA) (LF-SPA, SES)
SAO PAULO (UM) (SPA, SES)
SITKINAK (LORAN-C) (SK) (LF-SPA, SES)
SOFIA (SF) (SES)
SYLT (LORAN-C) (ST) (LF-SPA, SES)
TABLE MOUNTAIN (TM) (SWF, SPA, LF-SPA)
TORINO (TN) (SPA)
TRINIDAD (TR) (SWF)

PERIODS OF NO OBSERVATIONS:

DATE	TIME (UT) and STATION
01-02	0000-2400 PU, 0000-1301 TR
01-04	0000-0500 A4
01-07	0000-0500 A8
01	0000-0523 UM (16 kHz), 0000-2146 MA, 1015-2115 UM (16 kHz)
02	1700-2110 UM (18 kHz)
03	1350-1750 UM (17 kHz)
05	0050-0250 MA
07	2215-2328 TM
08-20	1015-0500 A5
08	2300-2400 MC
09	0000-1210 MC, 2124-2140 TM
10-16	0000-2400 LO
10	1400-1727 UM (17 kHz)
14	1000-1350 UM (16 kHz)
16	1300-2120 UM (18 kHz)
17	1355-1747 UM (17 kHz)
19	0157-0230 TM
20	1700-1708 TM
21	0130-0350 MA, 1000-1332 Um (16 kHz) 2150-2200 BO
22	1800-1843 TM, 2100-2120 TM
23-30	0330-2400 A4
26	1130-1335 TM
27-30	1200-2400 TR
28-30	1950-1122 BO
28	2116-2134 TM, 2218-2224 TM
29	0600-1318 TM
30	1926-1933 BO, 2059-2106 TM

SID's BY McMATH REGION

NOVEMBER 1972

DAY	94	12	15	16	18	28	X-RAY	UN-KNOWN	NO FP
01	2						1		
02	1								
03	1								
04									
05									
06									
07									
08									
09									
10									
11									
12									
13									
14									
15									
16									
17									
18		1							
19									
20									
21									
22			4		1				
23			1						
24			1						
25			1						
26			1			1			
27									
28				1					
29									
30									

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

NOVEMBER 1972

NOV 1972	TIMES OF OBSERVATION		STATION	EVENTS												SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	
01	0000	0715	CULG							0000	0715	1				IS
			CULG				0019	0020.5	1	0019	0021	2	0019	0020.5	1	IIIG
			CULG							0029	0036	1				IIIGG
			CULG							0037	0705	1				IIIN
			CULG							0100.5	0714.5	1				N,DP
			CULG							0124.5	0126.5	1				IIIGG
			CULG							0235	0243	2				IIIGG
			CULG				0238	0242.5	1	0238	0243	2	0238	0241	1	IIIGG
			CULG				0245.5	0247.5	1	0245.5	0248	2				IIIGG
			CULG							0308.5	0311					IIIGG,W
			CULG							0352	0359					IIIGG,W
			CULG							0417	0422.5	1				IIIG
			CULG							0429	0431.5	1				IIIG
			CULG				0454	0454.5	1	0453.5	0455	1	0454	0455	1	IIIGG
			CULG							0546.5		1				IIIB
	0638	0900	WEIS							0646.5	0900.0	1				IS
			CULG							0706.5		1				IIIB
			CULG				0714.5	0715.5	1	0714.5	0715.5	3				IIIG
			WEIS							0714.7	0715.5	3				IIIGG
			WEIS							0714.7	0715.7	3				II
			WEIS							0717.5	0717.7	1				IIIB
			WEIS							0720.6	0721.2	2				IIIG
			WEIS							0759.2	0759.8	3				IIIG
			WEIS							0801.1	0802.1	3				IIIGG
			WEIS							0804.2	0805.4	2				IIIG
	0944	1539	WEIS							0944.0	1530.0	1				IS
			WEIS							0944.7	0944.9	1				IIIG
			WEIS							0946.4	0947.9	2				IIIGG
			WEIS							1023.0	1023.2	1				IIIB
			WEIS							1035.0	1035.9	2				IIIG
			WEIS							1038.6	1039.0	2				IIIG
	1122	2131	SGMR										1304.6	1306.9	3	IIIG
			WEIS							1304.9	1307.3	3				IIIGG,RS
	1331	2338	HARV							1331	2120	1				I
	1330	2400	BOUL							1417.8	1418.0	1	1417.8	1418.0	1	III
			BOUL							1427.2	1427.4	1	1427.2	1427.4	1	III
			BOUL							1448.9	1449.8	1	1448.9	1449.8	1	IIIG
			BOUL							1511.9	1512.2	1	1511.9	1512.2	1	III
			BOUL							1647.0	1813.0	1				CCNT
			BOUL							1652.1	1655.5	2	1652.1	1655.5	2	IIIG
			HARV							1653	1655	2	1653	1655	2	IIIGG
			HARV							1719	1908	1	1719	1908	1	IIIN
			HARV							1736	1739	1	1736	1739	1	IIIG
			HARV							1756	1800	2	1756	1800	2	IIIGG
			BOUL							1756.0	1800.0	2	1756.0	1800.0	2	IIIG
			SGMR										1758.8	1800.0	2	III
			HARV							1811	1815	1	1811	1815	1	IIIGG
			BOUL							1812.2	1812.3	1				III
			BOUL							1813.3	1814.8	1	1813.3	1814.8	1	IIIG
			BOUL							1818.8	1819.8	2	1818.8	1819.8	2	IIIG
			BOUL										1841.5	1842.2	1	IIIG
	2016	2400	CULG							2016	2400	1				IS
			CULG							2016.5	2348	1				IIIN
			HARV				2109	2111	2							IIIGG
			HARV							2120	2253	1				IN
			BOUL							2137.9	2138.3	2	2137.9	2138.3	2	III
			CULG							2138.5	2140	1				IIIGG
			HARV							2139	2140	2	2139	2140	1	IIIG
02	0000	0712	CULG							0000	0712					IS,W
			CULG							0002	0534.5					IIIN,W
			CULG				0117	0117.5	1							FAST DRIFT
			CULG							0558.5	0559.5	1				IIIG,U
			CULG				0650.5	0651.5	1							FAST DRIFT
	0638	1530	WEIS							0752.0	1341.0	1				IN
	1123	2130	SGMR													
	1330	2400	BOUL							1442.0	1446.3	2	1442.0	1446.3	2	IIIGG
	1331	2337	HARV							1444	1447	1				IIIGG
			WEIS							1444.2	1444.9	1				IIIG
			HARV				2129	2330	1							IN
	2018	2400	CULG				2312	2345		2018	2400					IS,W
03	0000	0715	CULG				0002.5	0145.5	1	0000	0347	1				IS
			CULG							0203	0209.5	1				IIIGG
			CULG				0212	0213.5	1	0212	0215.5	1				IIIGG
	0644	1110	WEIS							0733.0	1106.0	1				IN
	1124	2129	SGMR													
	1330	2100	BOUL													
	1357	1530	WEIS							1408.5	1409.5	1				IS
	1330	2337	HARV				1534	1758	1							IN
	2016	2400	CULG							2057	2058	1				IIIG
			CULG							2212	2213	1				IIIG
			CULG				2215	2215.5	1	2214	2216.5	1				IIIGG
04	0000	0715	CULG							0133.5	0135.5	1				IIIGG
			CULG				0323	0324.5	1	0324	0324.5	1				IIIG
			CULG							0532.5	0659					IN,W
	0644	1538	WEIS													
	1126	2127	SGMR													
	1330	2100	BOUL													

SOLAR RADIO EMISSION
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NOV 1972	TIMES OF OBSERVATION		STATION	EVENTS													SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND				
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.		
04	1331	2336	HARV														
	2016	2400	CULG														
05	0000	0715	CULG							0138.5	0139						IIIG,W
			CULG							0500							IIIB,W
			CULG							0514.5	0515						IIIG,W
	0644	0794	WEIS														
	0735	1525	WEIS														
	1113	2126	SGMR														
	1348	2336	HARV														
	1330	2400	BOUL							1900.4	1901.5	1	1900.4	1901.5	1		III
	2016	2400	CULG							2232	2234.5						IIIG,W
06	0000	0715	CULG														
	1112	2125	SGMR														
	1348	2335	HARV														
	2016	2400	CULG							2017.5	2018.5						IIIG,W
	1330	2400	BOUL										2017.6	2020.0	1		IIIG
			CULG							2320	2321	1					IIIG,U
07	0000	0713	CULG							0145							IIIB,U,W
			CULG							0536.5	0537.5	1					IIIG
			CULG							0542.5							IIIB,W
	0652	1523	WEIS														
	1129	2124	SGMR														
	1345	2335	HARV														
	1330	2400	BOUL										1410.3	1410.5	1		III
	2019	2400	CULG														
08	0000	0715	CULG							0033.5	0035.5	1	0034	0034.5	1		IIIG,U,V
			CULG							0208							IIIB,W
	0654	1042	WEIS														
	1053	1521	WEIS														
	1131	2123	SGMR														
	1330	2400	BOUL														
	1345	2334	HARV														
	2016	2400	CULG														
09	0000	0715	CULG														
	0713	1458	WEIS														
	1132	2122	SGMR														
	1345	2334	HARV														
	2016	2131	CULG														
	1330	2400	BOUL										2141.2	2141.4	1		III
	2154	2400	CULG														
10	0000	0715	CULG														
	0753	1515	WEIS														
	1128	2121	SGMR														
	1338	2100	BOUL														
	1345	2333	HARV														
	2016	2400	CULG														
11	0000	0716	CULG														
	0656	1518	WEIS							0906.2	0906.3	1					IIIB
	1134	2120	SGMR														
	1345	2333	HARV														
	1330	2400	BOUL							1956.8	1959.2	1	1956.8	1957.2	1		III
	2016	2400	CULG														
12	0000	0715	CULG														
	0656	1517	WEIS														
	1136	2119	SGMR														
	1330	2400	BOUL														
	1345	2333	HARV														
	2019	2400	CULG														
13	0000	0006	CULG														
	0020	0716	CULG							0710	0710.5	1					IIIG
	1102	1315	WEIS														
	1137	2118	SGMR														
	1330	2400	BOUL														
	1345	2333	HARV														
	1445	1515	WEIS														
	2017	2400	CULG							2233	2233.5	1					IIIG
			CULG							2354	2355.5	2	2354	2355	1		IIIG,U,V
14	0000	0716	CULG							0035		1					IIIB
			CULG							0057	0058						IIIG,W
			CULG							0554	0554.5	1					IIIG
	0700	1514	WEIS														
	1138	2117	SGMR														
	1345	2333	HARV														
	2017	2100	CULG														
	2237	2400	CULG														
	1330	2400	BOUL										2252.9	2253.5	1		III
15	0000	0716	CULG														
	0702	1117	WEIS														
	1117	2116	SGMR														

SOLAR RADIO EMISSION
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NOV 1972	TIMES OF OBSERVATION		STATION	EVENTS												SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	
15	1148	1515	WEIS													
	1330	2400	BOUL													
	1345	2333	HARV													
	2017	2400	CULG													
16	0000	0716	CULG							0438.5	0440	1				IIIG
	0925	1506	WEIS													
	1141	2115	SGMR													
	1345	2333	HARV													
	1330	2400	BOUL										1704.4	1709.1	1	IIIG
	2017	2400	CULG													
17	0000	0716	CULG							0347.5	0348	1				IIIG
			CULG							0356.5						IIIB,W
			CULG				0553.5	0554	1	0553.5	0554	1				IIIG
			CULG							0655						IIIB,W
	0705	1410	WEIS													
	1124	2114	SGMR													
	1345	2333	HARV													
	1330	2400	BOUL							1631.8	1632.1	1	1631.8	1632.1	1	III
	2017	2059	CULG													
	2109	2400	CULG							2300	2301	1				IIIG
			CULG							2357	2358.5	2				IIIG,V
18	0000	0717	CULG							0315.5		1				IIIB
			CULG							0409	0410.5	1				IIIG,U
			CULG							0414.5	0415					IIIB,W
			CULG							0509.5	0511.5					IIIG,W
	1126	2113	SGMR													
	1330	2400	BOUL							1512.8	1513.1	1				IIIG
	2018	2400	CULG							2108.5	2109.5	1				IIIG,U
			BOUL							2108.6	2109.5	1	2108.6	2109.5	1	III
			CULG							2113	2114.5					IIIG,W
			BOUL							2128.2	2128.7	1	2128.2	2128.7	1	III
			CULG							2128.5	2129.5	1				IIIG
			CULG							2219	2220	1				IIIG
			BOUL							2219.5	2220.0	1	2219.5	2220.0	1	III
			CULG							2222	2222.5	1				IIIG,U
			BOUL							2222.2	2222.6	1	2222.2	2222.6	1	III
			BOUL							2255.9	2256.3	2	2255.9	2256.3	2	III
	1345	2333	HARV							2256	2300	1				IIIG
			CULG							2256.5		1				IIIB
			CULG							2258.5	2300.5	2				IIIG,V
			BOUL							2259.1	2300.5	2	2259.1	2300.5	2	III
			CULG							2301	2302	1				IIIG
			CULG							2303						IIIB,W
			CULG							2318	2319					IIIG,W
19	0000	0717	CULG							0040		1				IIIB
			CULG							0045.5	0046					IIIG,W
			CULG				0057	0058.5	1	0055.5	0059.5	2	0057.5	0058.5	1	IIIGG,V
			CULG							0221		1				IIIB
			CULG							0224	0225	1				IIIG
			CULG							0226	0227.5	1	0226.5	0227	1	IIIG,V
			CULG							0231		1				IIIB
			CULG							0317	0319	1				IIIG
			CULG							0320	0321	1				IIIG,U
			CULG							0338.5	0339.5	1				IIIG,U
			CULG							0419.5	0421					IIIG,U,W
			CULG							0630	0631.5	1				IIIG
	1124	2112	SGMR													
	1345	2333	HARV													
	1400	2400	BOUL													
	2018	2400	CULG							2038	2040					IIIG,W
			CULG							2232.5	2234.5					IIIG,W
20	1400	2400	BOUL										0009.1	0009.5	1	III
	0000	0717	CULG							0451.5		1				IIIB
	0825	1516	WEIS													
	1125	2111	SGMR													
	1345	2332	HARV				1707	1711	2							IIIGG
			HARV				1917	1918	2							IIIG
			HARV				1933	1934	2							IIIGG
	2018	2400	CULG													
21	0000	0717	CULG													
	0705	1510	WEIS							0910.8	0911.0	2				IIIG
	1134	2111	SGMR													
	1400	2400	BOUL													
	1345	2332	HARV				1523	1526	1							I
			HARV				1528	1538	2							IIIGG
			HARV				1611		1							IIIG
			HARV				1615	1621	3							IIIGG
			HARV				1640	1643	3							IIIG
			HARV				1728	1733	3							IIIGG
			HARV				1753	1759	3							IIIGG
			HARV				1817	1914	2							IIIN
			HARV				1903	1906	3							IIIGG
	2018	2400	CULG													
22	0000	0717	CULG				0528.5	0529.5		0528.5	0529.5					IIIG,W

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NOV 1972	TIMES OF OBSERVATION		STATION	EVENTS													SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND				
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.		
22			CULG				0610	0610.5	1	0610	0611	1					IIIG
			WEIS							0759.0	0809.0	2					UNCL
	0705	1135	WEIS							0759.6	0759.8	2					IIIG
			WEIS							0817.2	0817.4	1					IIIB
			WEIS							1000.5	1101.8	1					IIIG
			WEIS							1012.5	1012.7	2					IIIG
	1137	2110	SGMR														
	1141	1511	WEIS							1204.2	1207.6	1					IIIG
			WEIS							1246.8	1249.5	1					IIIG
	1345	2332	HARV				1422	1425	1								IIIGG
	1400	2400	BOUL							1546.5	1546.7	1					III
			HARV				1631	1634	1	1631	1634	1					IIIG
			BOUL							1746.0	1746.3	1					III
			HARV				1915	1922	1	1915	1918	2					IIIGG,U
			HARV							2033	2034	1					IIIG
	2017	2133	CULG							2033	2034	1					IIIG
			BOUL							2033.2	2033.5	1					III
			CULG							2127	2128	1					IIIG
	2144	2400	CULG							2318.5	2321.5	1					IIIG
23	0000	0718	CULG							0038	0039.5	1					IIIG
			CULG				0203	0206.5	1	0203	0207.5	1					IIIGG
	0718	1506	WEIS														
	1149	2109	SGMR														
	1345	2332	HARV														
	1400	2400	BOUL														
	2019	2400	CULG														
24	0000	0718	CULG				0355	0356	1								FAST DRIFT
			CULG							0618	0718						IH
	0712	1100	WEIS														
	1115	1504	WEIS							1145.0	1416.0	1					IS
	1151	2107	SGMR														
	1345	2332	HARV							1348	2208	1					I
	1400	2400	BOUL							1407.0	1653.5	1				IV	
			BOUL										1417.8	1418.0	1		III
			BOUL							1418.5	1419.7	1	1418.5	1419.7	1		III
			BOUL										1431.6	1432.3	1		III
			BOUL							1451.1	1451.4	1	1451.1	1451.4	1		III
			BOUL							1504.4	1505.2	2	1504.4	1505.2	2		III
			BOUL							1549.4	1549.5	1	1549.4	1549.5	1		III
			BOUL							1550.2	1550.8	1	1550.2	1550.8	1		III
			BOUL							1551.3	1551.7	1	1551.3	1551.7	1		III
			BOUL							1905.7	1905.8	1	1905.7	1905.8	1		III
	2019	2400	CULG							2019	2400	1					IS
			CULG							2028		1					IIIB
			HARV							2200	2327	1					IN
25	0000	0719	CULG							0000	0719	1					IS
			CULG							0352	0352.5	1					IIIG
	0717	1505	WEIS							0824.1	0824.9	2				II	
			WEIS							0826.5	0830.0	2					IIIG,RS
			WEIS							0828.5	0901.0	3				IV	
			WEIS							0924.0	0935.0	2				IV	
	1140	2109	SGMR														
	1400	2332	HARV							1400	2252	1					IN
	1400	2400	BOUL														
	2019	2400	CULG							2019	2400	1					IS
26	0000	0328	CULG							0000	0100						IS,W
	0358	0719	CULG							0600	0719	1					IS
	1153	2108	SGMR														
	1400	2400	BOUL														
	0722	1505	WEIS							1425.8	1426.2	1					IIIG
	2020	2400	CULG							2145.5							IIIB,W
			CULG							2307	2309.5	1					IIIG
	1400	2332	HARV							2307	2308	1					IIIG
27	0000	0719	CULG							0000	0719	1					IS
			CULG							0104.5	0107	1					IIIG
			CULG							0327.5							IIIB,W
	0720	0820	WEIS														
	0905	1502	WEIS														
	1154	2107	SGMR														
	1400	2332	HARV														
	1408	2400	BOUL														
	2020	2103	CULG														
	2115	2400	CULG														
28	0000	0719	CULG				0343.5	0344.5	1								FAST DRIFT
			CULG				0403	0405	1	0403	0405	1					IIIG,V
			CULG							0403.5	0458	2				IIH	
			CULG							0407	0449.5	1				IV	
	0928	1502	WEIS														
	1155	2107	SGMR														
	1408	2400	BOUL														
	2021	2408	CULG				2317.5	2318.5	1								FAST DRIFT
	1408	2332	HARV				2318		1	2318		2					IIIG
29	0000	0720	CULG														

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NOV 1972	TIMES OF OBSERVATION		STATION	EVENTS												SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	
29	0721	1335	WEIS													
	1157	2107	SGMR													
	1344	1500	WEIS													
	1400	2400	BOUL													
	1401	2333	HARV													
	2021	2400	CULG							2021	2400					IW
30	0000	0720	CULG							0000	0720	1				IS
	0724	1106	WEIS													
	1120	1500	WEIS													
	1158	2106	SGMR													
	1400	1833	BOUL													
	1400	2334	HARV				1521	1524	2							IIIGG
			HARV				1711	1717	1							IN
			HARV				1916	1919	2							IIIGG
	2021	2400	CULG							2021	2200					IW
			CULG							2114	2339	1				IIIN

The symbols used in connection with the spectral type in describing the important bursts are as follows:

B = Single burst
G = Small group (< 10) of bursts
GG = Large group (> 10) of bursts
C = Underlying continuum (particularly with type I)
S = Storm in the sense of intermittent but apparently connected activity
N = Intermittent activity in this period
U = U-shaped burst of Type III
RS = Reverse slope burst
DP = Drifting pairs
DC = Drifting Chains
H = Herringbone
W = Weak
P = Pulsations
CONT = Continuum
UNCLF = Unclassified activity

Note: Reports not received from Clark Lake Radio Observatory at time of publication.

COSMIC RAY INDICES
(Neutron Monitors)
NOVEMBER 1972

Nov. 1972	CHURCHILL DAILY AVERAGE COUNTS PER HOUR	DEEP RIVER DAILY AVERAGE COUNTS PER HOUR	CALGARY DAILY AVERAGE COUNTS PER HOUR	SULPHUR MT. DAILY AVERAGE COUNTS PER HOUR	CLIMAX DAILY AVERAGE COUNTS PER HOUR	DALLAS DAILY AVERAGE COUNTS PER HOUR
1	not available at time of publication	not available at time of publication	10743.1	7962.6	not available at time of publication	5954.9
2			10850.6	8043.7		5953.2
3			11032.6	8187.0		6006.5
4			11172.2	8310.4		6082.3
5			11481.8	8566.2		6198.2
6			11651.9	8723.7		6251.2
7			11695.0	8737.1(14)		6281.0
8			11674.9(16)	-- (0)		6306.3
9			-- (0)	8846.5(8)		6290.1
10			-- (0)	8831.4		6309.5
11			-- (0)	8887.0		6329.9
12			-- (0)	8940.0		6350.1
13			12015.4(8)	8960.6		6361.0
14			11978.7	8983.9		6371.6
15			12005.9	8977.2		6386.8
16			11986.8	8946.3		6394.2
17			12005.5	8962.9		6388.6
18			12054.4	9004.2		6395.3
19			12100.2	9029.0		6423.8
20			12059.8	8980.6		6421.8
21			12029.4	8962.5		6383.2
22			12050.3	8972.8		6408.6
23			12028.1	8966.2		6404.2
24			11998.0	8934.3		6359.1
25			11873.6	8831.3		6321.0
26			11738.3	8720.9		6298.7
27			11800.3	8740.8		6300.5
28			11783.5	8738.8		6295.7
29			11765.8	8743.8		6304.8
30			11801.7	8798.1		6315.7

( ) Number of hours for which data are available if less than 24 (or number of section hours if less than 40 for Climax).

Churchill and Dallas Super Neutron Monitors, Scaling Factors 120.

Deep River Super Neutron Monitor, Scaling Factor 300.

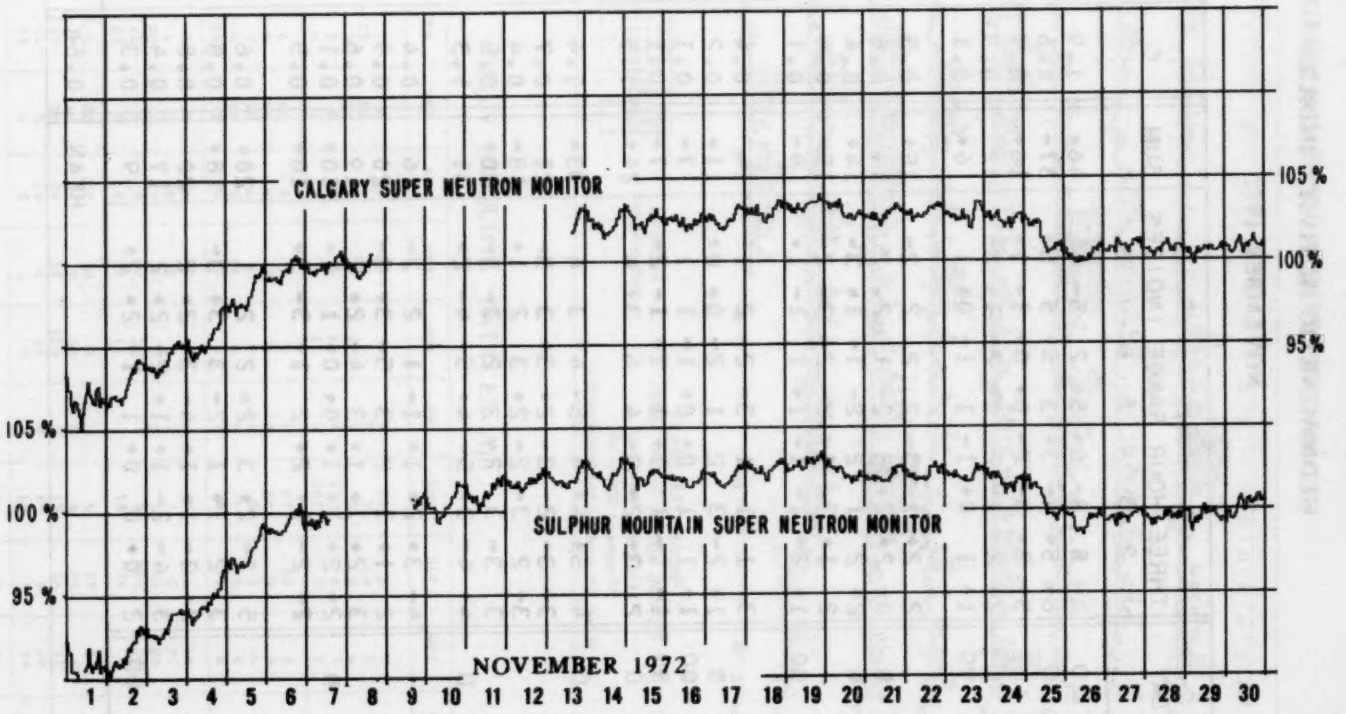
Calgary and Sulphur Mountain Super Neutron Monitors, Scaling Factors 100.

Climax IGC Station B305, Scaling Factor 100.

COSMIC RAY INDICES

(Pressure Corrected Hourly Totals)

NOVEMBER 1972

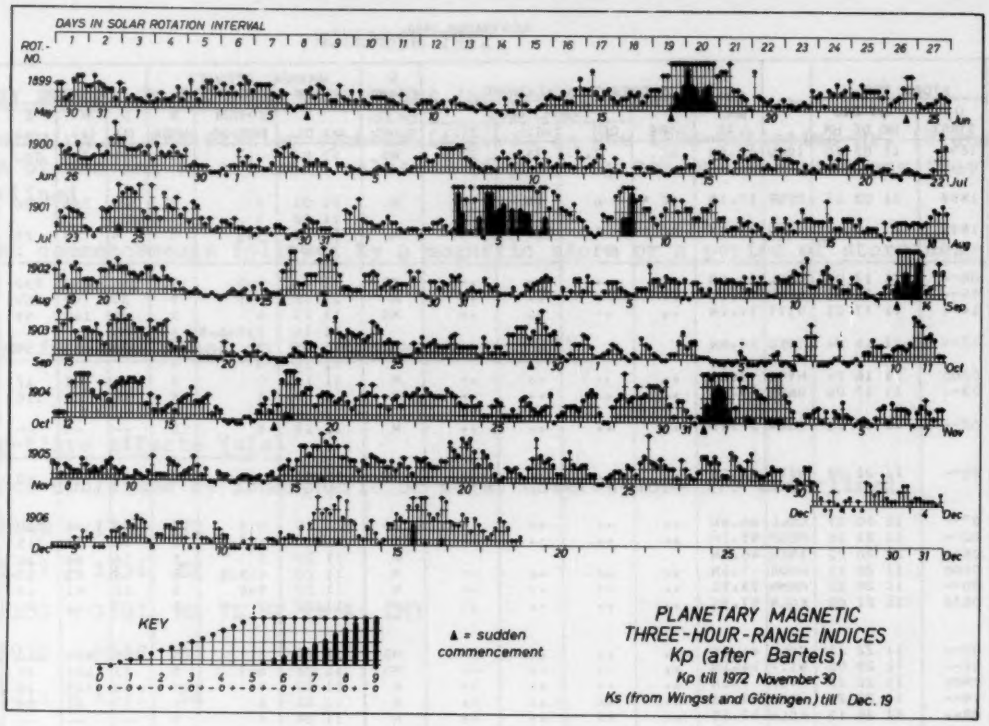


GEOMAGNETIC ACTIVITY INDICES

NOVEMBER 1972

DAY		K_p THREE-HOUR RANGE INDICES 1	2	3	4	5	6	7	8	SUM	C_i	C_p	A_p
1	D	8-	8	8-	6+	5+	2	5-	4	46-	1.9	1.9	98
2	D	6-	5+	4-	3+	3	5+	5	5+	37-	1.6	1.5	42
3		5+	3+	3-	2-	0+	0+	1+	1+	16+	0.7	0.8	13
4	Q	2-	2	1-	2-	0+	2-	1+	3-	12	0.3	0.3	6
5	QQ	1+	1	0+	1-	1	1-	0+	1	6+	0.1	0.1	3
6		2	2+	1-	3-	2	2	2	2-	15+	0.3	0.4	7
7	Q	0+	2-	2+	3	2-	1	2	2	14	0.6	0.4	7
8	Q	2+	2	1	2	2-	1+	1+	3-	14+	0.4	0.3	7
9		2	1+	2-	1+	2-	2+	3-	2-	15-	0.4	0.4	7
10	QQ	1+	2-	1-	1-	1+	1	1-	1+	9-	0.1	0.1	4
11		3	1	1	1	3-	2+	2	1	14	0.4	0.4	7
12	Q	1+	2-	3	2	1	2-	0+	0+	11+	0.2	0.3	6
13	QQ	1+	1	1	0+	0+	1-	1	1	7-	0.1	0.1	4
14	QQ	1-	1-	1	0+	1	1+	1-	2-	7+	0.1	0.1	4
15	D	2	3-	2-	3-	4	4	3+	4	24+	1.1	0.9	17
16	D	4	5+	4+	4	5-	4	3	4	33+	1.4	1.3	31
17		3-	3-	2-	3-	2+	3+	3	3-	21	0.7	0.7	12
18		3-	2	3-	2-	2+	3	2	1+	18-	0.4	0.5	9
19		3	3-	3	2+	2	2	3-	3-	20+	0.5	0.6	11
20	D	4+	4-	3+	5-	4+	5-	4-	2+	31	1.3	1.2	27
21		4-	3+	2+	1+	1-	1	2	2-	16	0.4	0.5	9
22		2	1+	1	2	3	5-	3+	3-	20	0.9	0.8	13
23		3	2+	1+	1+	3	4-	2+	2	19	0.6	0.6	11
24	Q	2+	2+	1+	1+	0+	0+	1	1+	10+	0.1	0.2	5
25		2-	2-	1+	2+	2	1+	3-	3+	16+	0.5	0.5	8
26		5	3-	2+	3	2+	2	2	1	20+	0.6	0.8	14
27		3	2	1+	1	2-	3+	3+	3-	18+	0.8	0.6	11
28		3+	3-	1+	1+	4-	3+	2+	2	20	0.8	0.7	12
29		3	4-	2-	1+	1+	2-	2+	2	17	0.4	0.5	9
30	QQ	2	0+	0	0+	1	1-	2+	2+	9	0.3	0.2	4
										MEAN	0.60	0.59	14

GEOMAGNETIC ACTIVITY INDICES



DAILY AVERAGE INDICES Ap

DAY	1971 DEC	1972 JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
1	6	7	7	8	17	18	6	5	10	5	7	98
2	5	8	13	10	11	18	6	7	5	6	5	42
3	12	6	9	16	4	7	12	7	5	5	4	13
4	8	10	9	8	17	5	13	4	132	6	7	6
5	5	6	6	5	17	6	11	3	182	5	2	3
6	3	2	6	26	8	9	7	4	87	10	2	7
7	1	4	8	45	8	3	8	10	20	5	8	7
8	3	4	7	12	6	4	6	10	9	9	4	7
9	7	5	4	10	3	14	4	6	74	8	4	7
10	3	7	10	3	5	9	4	7	18	15	6	4
11	6	15	7	7	6	7	4	6	17	11	19	7
12	9	6	4	3	10	9	3	7	7	5	21	6
13	13	4	22	7	12	8	4	3	5	53	21	4
14	3	3	15	4	7	7	10	3	9	54	26	4
15	3	19	13	5	6	38	11	6	10	24	8	17
16	8	29	8	20	6	18	8	8	6	19	12	31
17	67	20	22	16	6	9	62	8	6	26	2	12
18	22	19	12	11	24	10	126	5	13	14	11	9
19	11	11	14	5	10	4	19	8	14	6	34	11
20	3	8	12	5	8	4	9	5	15	4	14	27
21	10	22	9	5	19	4	5	3	15	2	16	9
22	19	25	4	10	10	5	12	10	8	4	13	13
23	12	32	6	8	8	7	11	10	3	13	18	11
24	7	10	33	20	5	5	14	17	2	16	11	5
25	6	17	16	8	3	5	6	33	5	6	6	8
26	12	22	6	10	3	8	10	17	18	7	8	14
27	4	15	4	19	7	8	17	9	25	8	7	11
28	4	23	6	11	22	22	13	5	8	8	11	12
29	15	14	2	22	42	10	11	4	8	25	21	9
30	16	9		27	17	14	3	4	6	8	20	4
31	7	7		15		12		6	7		29	
MEAN	10	13	10	12	11	10	14	8	24	13	12	14

PRINCIPAL MAGNETIC STORMS

NOVEMBER 1972

DATE 1972 MO DA	STORM TIME UT START	STORM TIME UT END MO DA HR	OBS	GEO-MAG LAT.	SUDDEN COMMENCEMENT TYPE	SUDDEN COMMENCEMENT AMPLITUDES D(')	H(γ)	Z(γ)	C FIGURE DEGREE OF ACTIVITY	MAXIMAL ACTIVITY ON K-SCALE 0 TO 9 MO DA	3-HOUR PERIOD	K INDEX	RANGES D (')	H (γ)	Z (γ)	STORM NUMBERS
10 31	1657	11 03 10	IRKU	40.8N	SC	2.8	76	12	MS	11 01	1,2	7	29	323	102	47
11 01	1838	11 03 11	NEWP	55.1N	SC *	6	18	6	M	11 01	8	5	22	166	70	48
										11 02	1					48
	1839	11 03 07	HONO	21.1N	SC *	- 1	+11 *	+ 6 *	M	11 02	1,2	5	4	77	25	48
11 15	08--	11 17 02	COLL	64.6N	..	..	..	..	MS	11 16	4,5	7	144	1450	930	49
	09--	11 17 01	NEWP	55.1N	..	..	..	..	M	11 16	2,5	5	30	95	159	49
	14--	11 17 01	WITT	54.1N	..	..	..	..	MS	11 15	6	5	25	140	55	49
										11 16	2,5,6,8	5				49
	12--	11 16 24	IRKU	40.8N					M	11 15	5	5	22	124	30	49
										11 16	5	5				49
	0300	11 16 24	HYDE	7.6N	..	..	..	..	M	11 16	5	5	4	151	12	49
	03--	11 17 00	GNAN	43.2S	..	..	..	..	M	11 15	6	5	18	80	110	49
										11 16	5					49
	09--	11 17 21	KGLN	57.3S	..	..	..	..	M	11 15	8	5	--	--	--	49
11 19	20--	11 21 05	WITT	54.1N	..	..	..	..	MS	11 20	1,5,6,7	5	20	150	50	50
11 20	07--	11 20 17	COLL	64.6N	..	..	..	..	MS	11 20	4,5	7	156	1390	1060	50
	00--	11 21 10	NEWP	55.1N	..	..	..	..	M	11 20	4,5,6	5	33	81	115	50
	06--	11 20 22	IRKU	40.8N					M	11 20	5	5	14	86	24	50
	0100	11 20 21	HYDE	7.6N	..	..	..	..	M	11 20	4,5,6	5	3	93	17	50
	00--	11 20 21	HRMN	33.3S	..	..	..	..	M	11 20	5,6	5	22	81	63	50
	0010	11 21 02	KGLN	57.3S	..	..	..	..	M	11 20	7	5	--	--	--	50
11 22	09--	11 22 23	COLL	64.6N	..	..	..	..	MS	11 22	6	6	155	830	660	51
	12--	11 23 02	WITT	54.1N	..	..	..	..	MS	11 22	6,7	5	25	105	35	51
	0800	11 22 23	HYDE	7.6N	..	..	..	..	M	11 22	6	5	2	109	10	51
	14--	11 22 23	HRMN	33.3S	..	..	..	..	M	11 22	6	5	17	41	58	51
	08--	11 24 13	KGLN	57.3S	..	..	..	..	M	11 24	4	5	--	--	--	51
11 25	0500	11 26 18	HYDE	7.6N	..	..	..	..	M	11 26	5	4	3	95	16	52
11 27	1300	11 28 21	HYDE	7.6N	..	..	..	..	M	11 28	5	5	3	117	21	53

Reports were received from the following observatories:

College, Sitka, Newport, Witteveen, Fredericksburg, Boulder, Irkutsk, Tucson, San Juan, Honolulu, Hyderabad, Guam, Apia, Port Moresby, Hermanus, Gnangara, Port-aux-Francais

SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS

NOVEMBER 1972

PRELIMINARY REPORT ON MAGNETIC VARIATIONS (by Dr. A. Romana)

The meaning of the station symbols is given in the IAGA-Bulletins nr. 12 and 32. Times of ssc and si are mean values. If given by ten or more stations they are underlined.

Sudden commencements followed by a magnetic storm or a period of storminess (ssc)

none

Sudden impulses found in the magnetograms (si)

none

Solar-flare effects (sfe)

Effects confirmed by ionospheric or solar observations are underlined.

04 1141 - 1150 SZ

05 1217 - 1234 SZ

06 1150 - 1201 MA TL SZ (b:A: LM)

08 0920 - 0952 SZ

11 1214 - 1227 SZ

12 1018 - 1029 MA SZ

18 1508 - 1538 SZ

23 1433 - 1442 SZ

28 1206 - 1219 SZ

30 1237 - 1254 SZ

RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

North Atlantic — NOVEMBER 1972

NOV. 1972	WHOLE DAY INDICES NORTH ATLANTIC	ADVANCE FORECASTS (JC-REPORTS) FOR WHOLE DAY	NORTH ATLANTIC 6-HOURLY QUALITY FIGURES 00 TO 06	06 TO 12	12 TO 18	18 TO 24	NORTH ATLANTIC SHORT-TERM FORECASTS ISSUED ABOUT ONE HOUR IN ADVANCE OF 02	08	14	20	GEOMAGNETIC INDICES K_{FR} HALF DAY (1)	(2)	A_{FR} OBSERVED
01	4o	6	4-	3o	4+	5o	5	4	4	5	(6)	3	54
02	5+	4	4o	5+	7-	6-	5	5	5	5	(4)	3	24
03	6-	5	5o	5+	7-	6o	5	5	5	6	3	1	8
04	6+	6	6-	6o	7-	6+	6	6	6	6	1	1	3
05	6+	6	7-	6o	7-	6+	6	6	6	6	1	1	2
06	6+	6	6+	6+	7-	6+	5	5	6	6	2	2	8
07	6o	6	6-	6o	7-	6o	6	6	5	6	2	1	7
08	6o	6	6o	7-	7-	5+	6	5	5	6	2	1	6
09	7-	6	6+	7-	7-	6+	6	5	6	6	2	1	5
10	7-	6	6o	7-	7-	7-	6	5	5	7	1	1	4
11	6+	6	7-	6+	6+	7-	6	6	6	6	2	2	6
12	7-	6	7-	7-	7-	7-	6	6	6	6	2	1	7
13	6+	6	7-	6o	7-	6+	6	6	6	7	1	1	3
14	6+	6	7-	6o	6+	6+	6	6	6	7	1	1	3
15	6o	6	6+	6-	6+	6o	6	5	6	6	3	3	15
16	6o	6	6-	5+	6o	7o	6	5	5	6	(4)	3	23
17	6+	6	6+	6o	7-	7-	6	5	5	6	3	3	11
18	6+	6	7-	6o	7-	6+	6	6	5	6	2	2	7
19	6+	7	6-	7-	7-	6+	5	5	5	6	3	2	11
20	6+	7	6o	6o	6o	7-	5	5	5	6	(4)	3	23
21	6o	7	6-	5+	7-	6+	6	5	5	7	3	1	11
22	6o	7	6+	6-	7-	6-	6	6	6	6	2	3	9
23	6o	7	6-	6+	6+	6o	6	6	6	6	2	2	8
24	6+	7	6+	6-	7-	6+	6	6	6	7	2	1	5
25	6+	6	7-	7-	7-	6-	6	6	6	6	2	2	8
26	6+	6	6-	7-	7o	6+	5	5	6	6	3	2	12
27	7-	6	6+	7-	7o	6+	5	6	6	6	2	2	7
28	7-	6	7-	7-	7-	6+	6	6	6	6	2	2	9
29	6+	6	6o	6+	7-	6o	6	4	5	7	3	1	9
30	6+	6	6o	6+	7-	6+	6	6	6	7	0	1	1

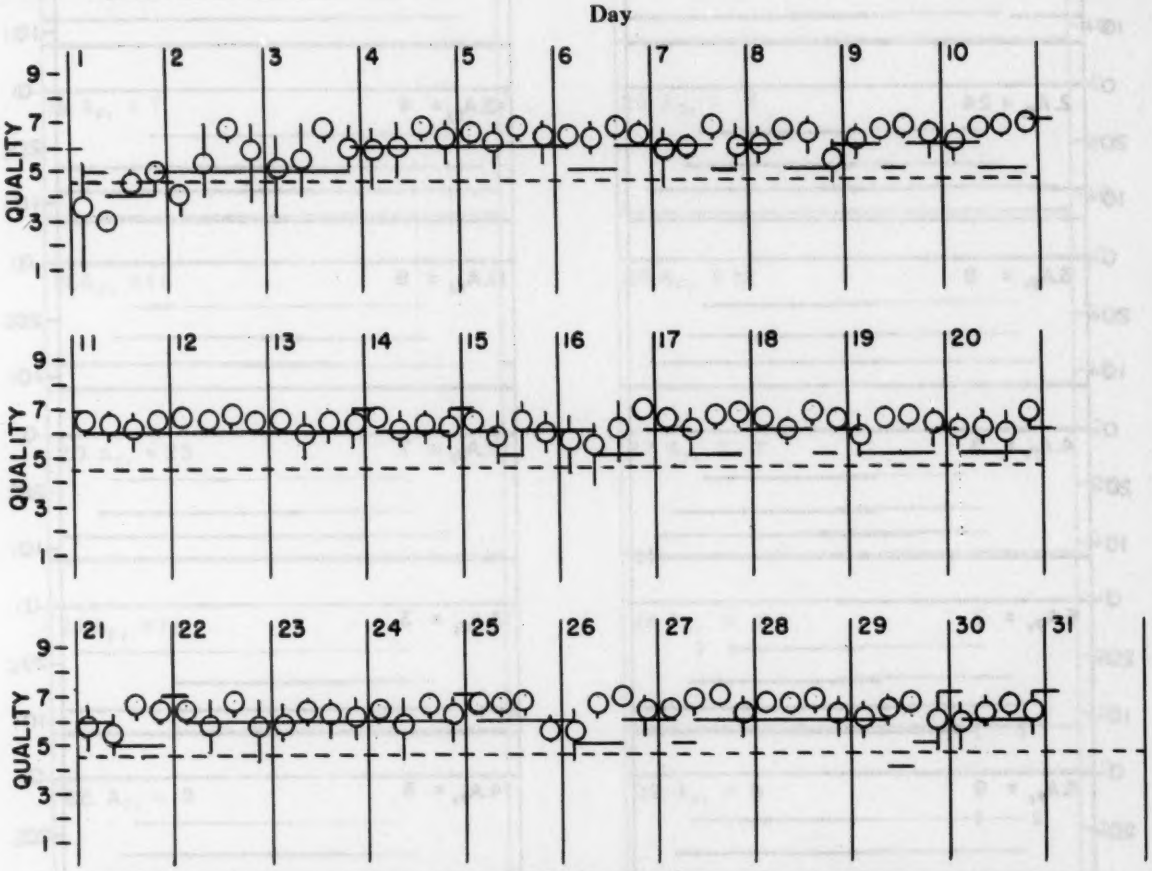
RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

NOVEMBER 1972

North Atlantic

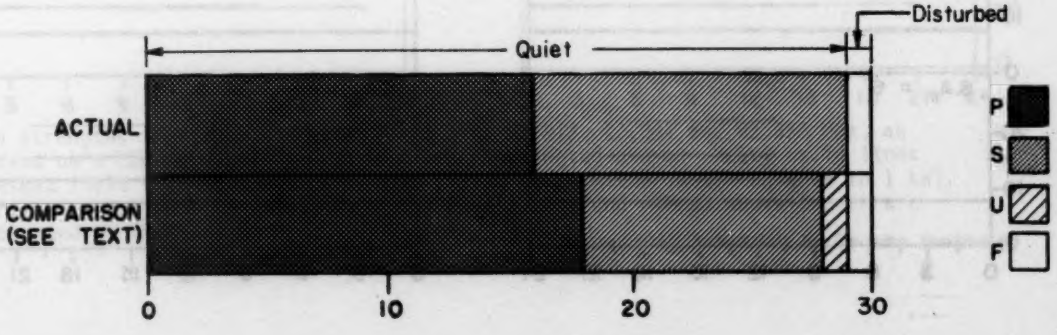
– Short term forecast
o Quality figure

1 range of reports



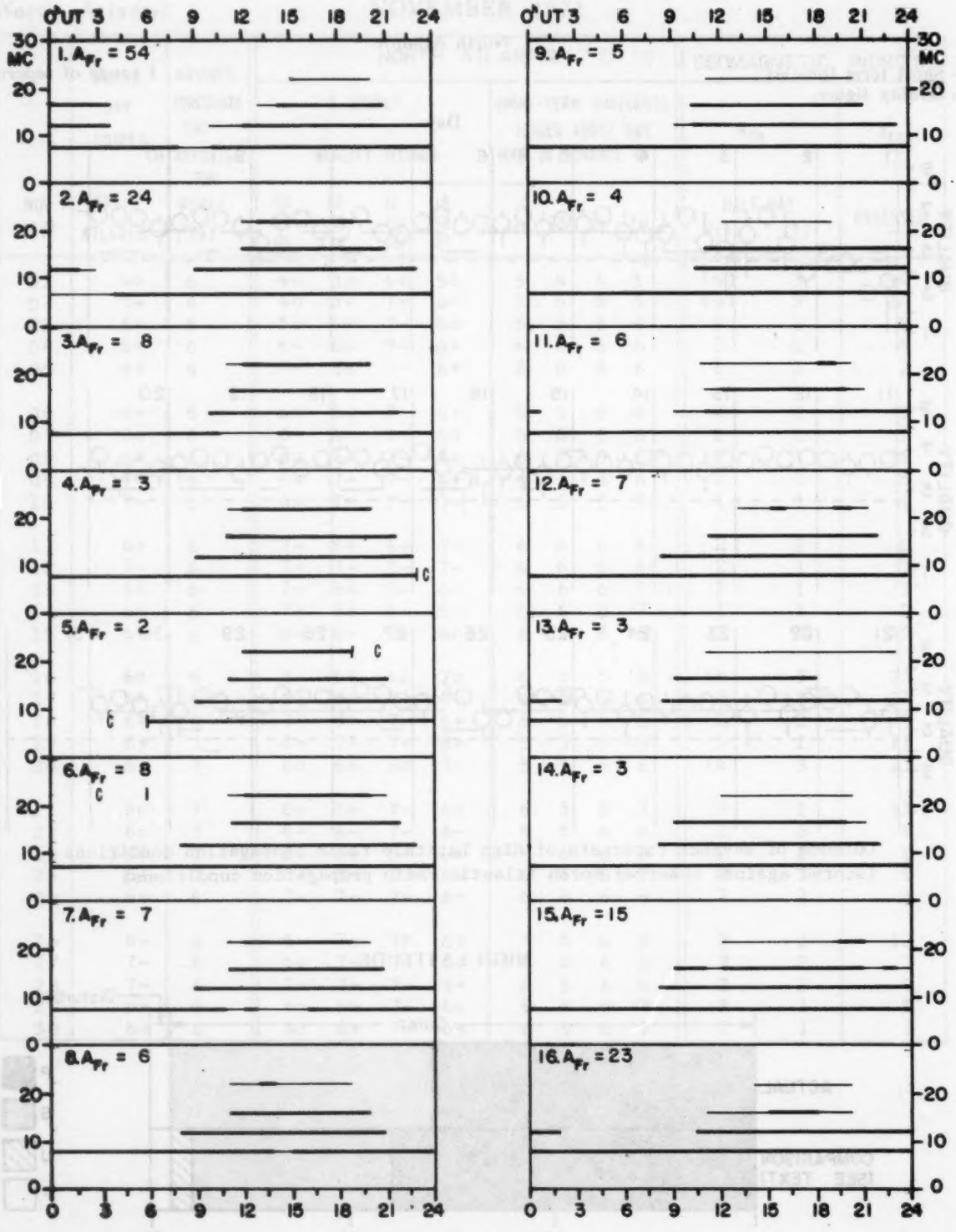
Outcome of advance forecasts of High Latitude radio propagation conditions (scored against observed North Atlantic radio propagation conditions)

HIGH LATITUDE



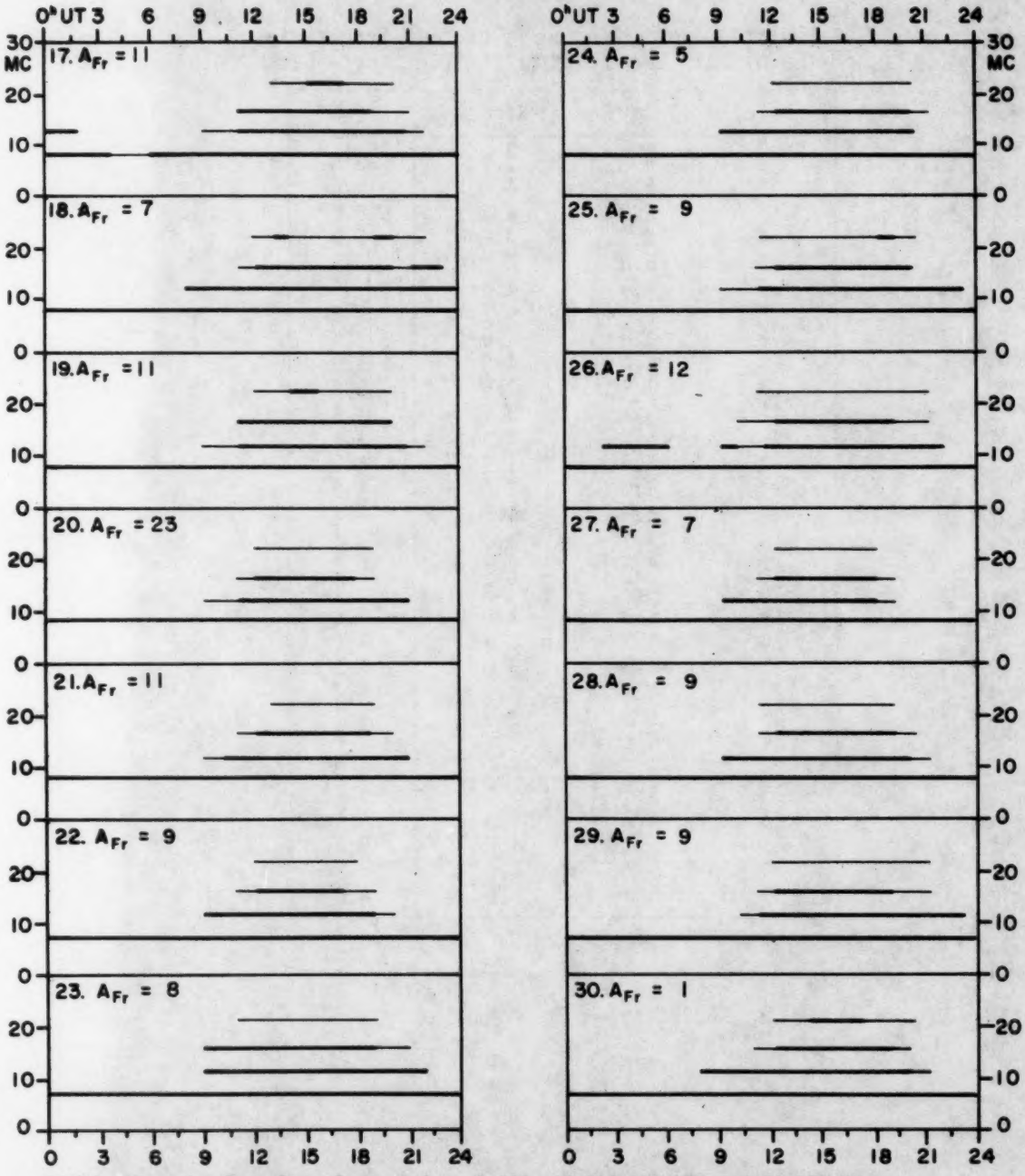
TRANSMISSION FREQUENCY RANGES – NORTH ATLANTIC PATH

NOVEMBER 1972



TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

NOVEMBER 1972



Field strengths from four frequencies, 8.542, 12.813, 17.084 and 22.378 MHz, as observed on a Lüchow - Halifax circuit are represented above. Heavy solid lines represent field strengths ≥-12 dB above 1 μv/m (transmitter power reduced to 1 kW). Observed field strengths between -12 dB above 1 μv/m and -40 dB above 1 μv/m are represented by the fine line.

Adapted from Observations by Deutsche Bundespost

RADIO PROPAGATION QUALITY INDICES

NOVEMBER 1972

Calculated from the records of four frequencies
on the circuit Lüchow - Halifax (Germany - Canada)

Date	Day	Night	D+N
1	3.2	3.9	3.6
2	5.3	4.8	5.1
3	5.5	4.3	5.0
4	6.9	4.2	5.7
5	6.6	4.7	5.8
6	6.5	4.3	5.6
7	5.8	5.1	5.5
8	4.8	4.0	4.5
9	6.6	4.2	5.5
10	7.2	4.5	5.8
11	5.7	3.4	4.8
12	5.7	4.3	5.1
13	5.4	4.9	5.1
14	5.5	3.6	4.8
15	6.8	4.5	5.7
16	3.7	3.1	3.4
17	4.6	2.8	4.1
18	6.3	3.9	5.1
19	5.3	3.5	4.6
20	4.5	2.9	4.0
21	4.7	3.0	4.1
22	4.1	3.9	4.2
23	5.5	3.3	4.7
24	5.6	3.2	4.7
25	6.5	5.6	6.2
26	5.4	3.4	4.7
27	4.2	4.3	4.4
28	5.7	4.0	5.2
29	5.8	4.3	5.2
30	5.0	3.6	4.6

USCOMM-NOAA-ASHEVILLE,NC-1-31-1125

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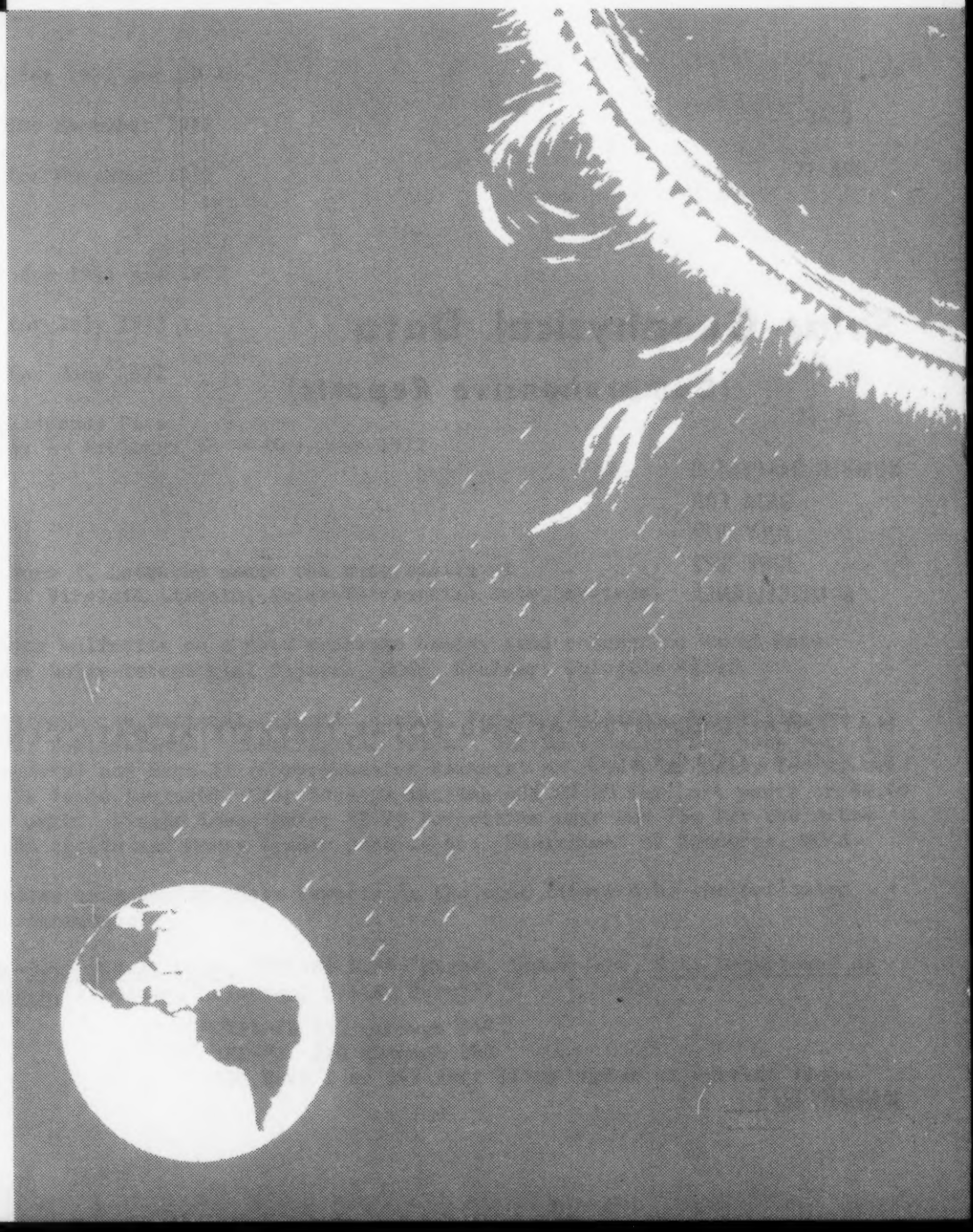
SOLAR-GEOPHYSICAL DATA
(comprehensive reports)

U. S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Environmental Data Service



JANUARY 1973

NUMBER 341-PART II
DATA FOR
JULY 1972
JUNE 1972
& MISCELLANEA

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NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
Robert M. White. Administrator

ENVIRONMENTAL DATA SERVICE
Thomas S. Austin, Director

Solar-Geophysical Data

(Comprehensive Reports)

NUMBER 341-PART II
DATA FOR
JULY 1972
JUNE 1972
& MISCELLANEA

NATIONAL GEOPHYSICAL AND SOLAR-TERRESTRIAL DATA CENTER
BOULDER, COLORADO

JANUARY 1973

S O L A R - G E O P H Y S I C A L D A T A

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Edited by:
Miss Hope I. Leighton under the supervision of
Miss J. Virginia Lincoln, Solar-Terrestrial Data Services.

For obtaining bulletins on a data exchange basis, send request to World Data Center A for Solar-Terrestrial Physics, NOAA, Boulder, Colorado 80302.

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To standardize referencing these reports in the open literature, the following format is recommended:

Solar-Geophysical Data, CRPL-FB 135*, pages, issue date, U.S. Department of Commerce, (Boulder, Colorado, U.S.A. 80302).

*CRPL-FB 135 through 269
IER-FB 270 through 298
299 Part I or 299 Part II to number of current issue.

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A.7b	Coronal Line Emission	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	
A.7c	White-Light Corona (NRL OSO-7, 1971-083A)	---	---	---	---	---	---	332	333	334	335	336	337	338	339	340	341	
A.7d	Solar EUV Spectroheliogram Fe XV 284 Å (GSFC OSO-7, 1971-083A)	---	---	---	---	---	---	---	---	---	335	336	337	338	339	340	341	
A.8aa	2800 MHz - Daily Values of Solar Flux (ARO-Ottawa)	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341
A.8ac	2800 MHz - Daily Values of Adjusted Solar Flux (ARO-Ottawa)	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341
A.8g	15400, 8800, 4995, 2695, 1415, 606, 410, 245 MHz Adj. Solar Flux (AFCRL)	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341
A.9a	9.1 cm Radio Maps of the Sun (Stanford)	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	
A.9b	21 cm Radio Maps of the Sun (Fleurs)	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	
A.9c	8.6 mm Radio Maps of the Sun (Prospect Hill)	326	327	328	329	330	331	332	333	334	335	336	338	338	339	340	341	
A.10a	169 MHz - Interferometric Observations (Nançay)	325	---	---	333	333	333	333	334	334	334	335	336	337	338	340	340	341
A.10b	408 MHz - Interferometric Observations (Nançay)	325																
A.10c	21 cm East-West Solar Scans (Fleurs)	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341
A.10d	43 cm East-West Solar Scans (Fleurs)	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341
A.10e	10.7 cm East-West Solar Scans (Ottawa-ARO)	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341
A.11aa	Solar X-ray Radiation (Explorer 37 or 44)	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	
A.11ab	Solar X-ray Radiation (Explorer 37 or 44) Graphs	330	331	332	333	334	335	336	337	338	339	340	341					
A.11e	Solar X-ray Spectroheliograms (OSO-5)	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340		
A.12aa	Solar Protons (Explorer 41 or 43) Daily hourly values	336	336	336	338	338	338	337	337	338	339	340	341					
A.12ab	Solar Protons (Explorer 41 or 43) Graphs	336	336	336	338	338	338	337	337	338	339	340	341					
A.12ba	Cosmic Ray Protons (Pioneers 6 & 7)	325	326	327	328	329	330	331	332	333	334	335	336	337	---	339	340	---
A.12bb	Cosmic Ray Protons (Pioneers 8 & 9)	325	326	329	329	---	---	---	---	333	334	335	336	337	338	339	340	341
A.12c	Cosmic Ray Protons (ATS-1)	325	326	327	328	329	330	331	332	333	334	335	336	337				
A,13a	Solar Wind (Pioneers 6 & 7)	325	326	327	328	329	330	331	332	333	334	335	336	337	---	339	340	341
A.13c	Solar Wind (Vela 3 & 5)	325	326	327	328	329	330	331	332	333	334	335						
A.17	Interplanetary Magnetic Field (Pioneer 9)									333	334	335	336	337	338	339	340	341
A.18	Interplanetary Electric Field (Pioneers 8 & 9)									333	334	335	336	337	338	339	340	341
B.	Ionospheric (and Radio Wave Propagation) Phenomena																	
B.51ca	High Latitude Quality Figures and Forecasts	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	
B.51cb	High Latitude Comparison Graphs	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	
B.52	Graphs of Transmission Frequency Range	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	
B.53	Quality Figures based on Frequency Ranges	326	327	328	330	330	331	332	333	334	335	336	337	338	339	340	341	
C.	Flare-Associated Events																	
C.1a	Optical Observations Flares	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341
C.1ba	Optical Observations Flares (Including Standardized Data)	330	331	332	333	334	335	336	337	338	339	340	341					
C.1d	Flare Patrol Observations	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341
C.1e	Flare Indices (by day)	330	331	332	333	334	335	336	337	338	339	340	341					
C.1f	Flare Index by Region	331	332	333	334	335	336	337	338	339	340	341						
C.3	Solar Radio Waves - Fixed Frequencies - Outstanding Occurrences	330	331	332	333	334	335	336	337	338	339	340	341					
	Solar Radio Waves - Fixed Frequencies - Selected	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341
C.4aa	10-2000 MHz - (Fort Davis)	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	
C.4b	7.6-80 MHz - (University of Colorado)	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	
C.4d	8-8000 MHz - (Culgoora)	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	
C.4e	30-1000 MHz - (Weissenau, G.F.R.)	327	327	328	329	330	331	332	336	334	335	336	337	338	339	340	341	
C.4f	24-48 MHz - (AFCRL, Sagamore Hill)	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	
C.4g	20-60 MHz - (Clark Lake Radio Observatory)	328			333	333		333		334	335							
C.5b	Solar X-ray Radiation (Explorers 33 & 35)	330	331	332	333	334	335	337	338	338	341	341	341					
C.5c	Solar X-ray Radiation (Explorer 37 or 44)	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	
C.6	Sudden Ionospheric Disturbances	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	
D.	Geomagnetic and Magnetospheric Phenomena																	
D.1a	Geomagnetic Indices Cl, Cp, Kp, Ap - Selected Days	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	
D.1b	27-Day Chart of Kp Indices for Year	330	330	330	330	330												
D.1c	27-Day Chart of C9 for Year	330	330	330	330	330												
D.1d	Principal Magnetic Storms	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	
D.1e	Reduced Magnetograms	---	---	---	---	334	---	---	---	---	339	340						
D.1f	Sudden Commencement and Solar Flare Effects	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	
F.	Cosmic Rays																	
F.1a	Cosmic Ray Neutron Counts (Deep River)	326	327	328	329	330	331	332	334	334	335	336	337					
F.1b	Cosmic Ray Neutron Counts (Climax)	328	328	328	329	330	331	332	333									
F.1c	Cosmic Ray Neutron Counts (Dallas)	326	327	328	333	333	331		333	334	335	336	337	338	339	340	341	
F.1d	Cosmic Ray Neutron Counts (Churchill)	326	327	328	333	333	331					336						
F.1e	Cosmic Ray Neutron Counts (Alert)	326	327	328	329	330	331	332	334	334	335	336	337					
F.1f	Cosmic Ray Neutron Counts (Calgary)	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	
F.1g	Cosmic Ray Neutron Counts (Sulphur Mountain)	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	
H.	Miscellaneous																	
H.60	IUWDS Alert Decisions	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341
H.62	Abbreviated Calendar Record	331	332	333	334	335	336	337	338	339	340	341						

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No reduced magnetograms will be produced for July 1972.	

Errata: See page 42

For explanations of the data contained herein see "Descriptive Text" published as supplement to February 1972 "Solar-Geophysical Data" (Number 330).

SOLAR FLARES
Confirmed
JULY 1972

OBSERVATORY	OBSERVED UT				LOCATION					DURATION — MIN.	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE 1972	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	NOAA PLAGE REGION	CMP DAY			COND.	TYPE	TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH HG	MAX. INT. %	
	JUL																		
	01	0000	0050	NO FLARE PATROL															
	01	0122	0140	NO FLARE PATROL															
GRP45059	01	0304E	0331D	0310	N06	W01	.058	11939	1.1	27	1F				4.13				2 2 2 2
VORO	01	0304E	0338D		N06	E00	.055	11939	1.1	26D	1N		P	0314	4.34	4.28		79	E
MITK	01	0306E	0331D	0310	N06	W01	.058	11939	1.1	25D	1F		C	0310	3.92	3.90			E
GRP45064	01	1434	1458	1438	N14	E58	.851	11945	6.0	24	--F				.34				5 5 4 9
CANR	01	1430	1447		N14	E56	.833	11945	5.8	17	-F	2	V	1438	.30	.50			
HTPR	01	1434	1457	1438	N14	E57	.842	11945	5.9	23	-F		C	1438	.31	.60			E
BOUL	01	1435	1444	1439	N16	E56	.835	11945	5.8	9	-F	3	V						
RAMY	01	1435E	1510	1437U	N14	E59	.859	11945	6.0	35D	-N	2	V		.46				DE
CAPS	01	1436E	1510D		N13	E60	.867	11945	6.1	34D	-N	2	V	1440	.30	.60		(195)	C
067 HUAN	01	1927	1930	1928	N17	E50	.778	11945	5.6	3	--F	2	C	1928	.36	.58			3
	01	2230	2245	NO FLARE PATROL															
	01	2309	2316	NO FLARE PATROL															
068 TEHR	02	0217	0230	0220	N08	W10	.193	11939	1.3	13	--F	3	V		.37				DE 2
069 TEHR	02	0306	0310	0308	N08	W10	.193	11939	1.4	4	--F	4	V		.09				DE 3
GRP45070	02	0416	0435	0420	N09	W09	.187	11939	1.5	19	--F				.72				2 2 2 4
TEHR	02	0415E	0432	0420	N08	W10	.193	11939	1.4	17D	-N	4	V		1.11				F
ATHN	02	0417	0437	0420	N09	W08	.173	11939	1.6	20	-F	2	C		.33				DE
GRP45072	02	0844	0909	0853	N08	W16	.287	11939	1.2	25	-N				.94				5 5 5 8
ATHN	02	0837	0855	0841	N11	W12	.248	11939	1.5	18	-F	3	V		.33				DE
ABST	02	0840	0915D	0855	N05	W16	.277	11939	1.2	35D	-F		P	0855	1.08	1.20			EJ
CANR	02	0845	0900		N08	W17	.303	11939	1.1	15	-F	3	V	0848	.60	.60			
HTPR	02	0847	0910	0850	N08	W15	.272	11939	1.2	23	-F		C	0850	.62	.60			K
HTPR	02	0847	0910	0855	N08	W15	.272	11939	1.2	23	-F		C	0855	.52	.50			K
CATA	02	0850	0915	0850	N08	W15	.272	11939	1.2	25	-N		C	0850	1.44	1.50		(170)	
ATHN	02	0852E	0910	0857	N09	W18	.324	11939	1.0	18D	-N	3	V		1.16				F
ABST	02	0853E	0910	0856	N07	W19	.331	11939	30.9	17D	-N		P	0856	.90	1.00			DJ
GRP45073	02	0936	1004	0939	N06	W15	.263	11939	1.3	28	--N				.82				7 7 7 11
CATA	02	0935	1005	0940	N07	W14	.251	11939	1.3	30	-N		C	0940	.46	.48		(172)	
HTPR	02	0935	1005	0939	N06	W15	.263	11939	1.3	30	-F		C	0939	.31	.30			E
ATHN	02	0936E	0959	0937	N06	W15	.263	11939	1.3	23D	-F	3	V		.50				DE
TEHR	02	0936	0959	0940	N06	W16	.280	11939	1.2	23	-N	4	V		.65				F
CAPS	02	0937E	1010D		N06	W14	.247	11939	1.4	33D	-N	1	V	0942	.40	.40		(165)	C
ABST	02	0938E	0952D	0940	N05	W15	.261	11939	1.3	14D	1F		P	0940	2.70	2.80			EJ
ARCE	02	0947E	0949D		N06	W16	.280	11939	1.2	2D	-N		P	0948	.71	.70			
GRP45076	02	1346	1440	1357	N06	W18	.312	11939	1.2	54	-N				1.20				7 7 7 10
CATA	02	1345	1405D	1400	N06	W18	.312	11939	1.2	20D	-B		P	1400	1.62	1.71		(224)	
HTPR	02	1346	1445	1351	N06	W17	.296	11939	1.3	59	-F		C	1351	.83	.90			E
HUAN	02	1347	1435		N05	W18	.310	11939	1.2	48	-N	1	C	1357	.72	.76			E
MCMA	02	1347	1430D		N05	W18	.310	11939	1.2	43D	-N		P	1350	.67	.70			E
TEHR	02	1352E	1439	1357	N05	W19	.327	11939	1.2	47D	-N	3	V		1.19				F
RAMY	02	1355E	1437	1358	N06	W18	.312	11939	1.2	42D	-N	3	C		2.84				F
CAPS	02	1405E	1446D		N07	W15	.267	11939	1.5	41D	-N	2	S	1405	1.30	1.40		(171)	LC
GRP45077	02	1840	1854	1842	N06	W23	.393	11939	1.1	14	--F				.46				4 4 4 4
RAMY	02	1837	1859	1840	N06	W22	.377	11939	1.1	22	-F	3	C		.56				DE
HUAN	02	1838	1850	1840	N06	W24	.409	11939	1.0	12	-F	1	C	1840	.31	.34			E
CANR	02	1842	1846D	1846	N07	W22	.379	11939	1.1	4D	-F	2	V	1846	.60	.60			
PALE	02	1842E	1854	1843U	N06	W23	.393	11939	1.1	12D	-F	2	C		.36				F
078 HUAN	02	2020	2048		N14	E41	.668	11945	5.9	28	--F	1	C						3
GRP45079	02	2039	2124	2046	N06	W24	.409	11939	1.1	45	--F				.55				2 2 1 2
PALE	02	2039	2121	2046	N06	W24	.409	11939	1.1	42	-N	3	C		.55				DE
HUAN	02	2041U	2127U		N06	W24	.409	11939	1.1	46D	-F	1	C						E
GRP45080	02	2148	2217	2200	N06	W25	.424	11939	1.0	29	--F				.42				3 3 3 3
HUAN	02	2148	2217		N06	W27	.455	11939	30.9	29	-F	1	C	2157	.26	.29			D
PALE	02	2153E	2208D	2157U	N06	W25	.424	11939	1.0	15D	-F	3	C		.55				F
RAMY	02	2201E	2212D	2203U	N06	W23	.393	11939	1.2	11D	-F	1	C		.46				DE
	02	2353	2358	NO FLARE PATROL															
081 MITK	03	0025	0040	0027	S09	E90	1.000	11949	9.8	15	1N		C	0027	.62				D 3

Note: Catania and Capri-S express Maximum Intensities in percent of the local undisturbed chromosphere instead of percent of the local continuum. Parentheses are used to indicate this difference.

SOLAR FLARES
Confirmed
JULY 1972

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	NOMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hg	MAX. INT. %	
	1972 JUL																		
GRP45082	03	0518	0551	0523	N06	W28	.470	11939	1.1	33	--F				1.10				7 7 7 8
HTPR	03	0513	0605	0523	N07	W28	.472	11939	1.1	52	-F		C	0523	.52	.60			
ABST	03	0514	0620	0525	N06	W30	.501	11939	1.0	66	1F		C	0525	2.70	3.10			E
MANI	03	0515	0530	0521	N06	W29	.486	11939	1.0	15	-F	2		0521	.83	.94			
ABST	03	0515	0617	0525	N06	W25	.424	11939	1.3	62	-F		C	0525	1.08	1.20			EZ
TEHR	03	0518E	0540	0523	N05	W26	.438	11939	1.3	22D	-N	3	V		.84				F
ATHN	03	0519E	0600	0522	N05	W29	.485	11939	1.0	41D	-F	3	V		.66				DE
CRON	03	0523E	0532	0523	N06	W30	.501	11939	1.0	9D	-F	3	V	0532	.65				
CATA	03	0525	0550D	0525	N06	W28	.470	11939	1.1	25D	-N		P	0525	1.91	1.71		(204)	
GRP45083	03	0748	0804	0750	N09	W27	.461	11939	1.3	16	-N				.88				6 6 5 7
HTPR	03	0747	0800	0748	N09	W28	.476	11939	1.2	13	-N		C	0748	.41	.50			E
ATHN	03	0748E	0815D	0749	N08	W28	.474	11939	1.2	27D	-F	3	V		.50				DE
ABST	03	0748	0805	0750	N09	W28	.476	11939	1.2	17	1F		C	0750	1.98	2.20			EZ
TEHR	03	0749E	0757	0749U	N08	W27	.459	11939	1.3	8D	-N	3	V		.36				F
MONT	03	0749	0758	0754	N09	W26	.446	11939	1.4	9	-N		C	0754	1.13				
CAPS	03	0750E	0808D		N08	W25	.428	11939	1.5	18D	-N	2	V						C
GRP45090	03	1120	1126	1122	N13	W76	.969	11948	27.8	6	--F				.40				3 3 3 6
ABST	03	1119	1128D	1121	N13	W79	.980	11948	27.5	9D	1N		P	1121	.90				D
HTPR	03	1120	1125	1122	N13	W75	.965	11948	27.8	5	-F		C	1122	.21				
MONT	03	1120	1125	1122	N13	W73	.955	11948	28.0	5	-F		C	1122	.10				
GRP45094	03	1329	1349	1333	N13	W74	.960	11948	28.0	20	--F				.26				4 4 3 6
ARCE	03	1305E	1355D		N12	W75	.965	11948	27.9	50D	-F		C	1335	.26				
HTPR	03	1328	1345	1333	N13	W75	.965	11948	27.9	17	-F		C	1333	.21				
HUAN	03	1330	1344	1334	N13	W72	.950	11948	28.2	14	-N	1	C	1334	.31				
RAMY	03	1330	1350	1333	N12	W73	.955	11948	28.1	20	-N	4	V						DE
GRP45095	03	1729	1814	1740	S01	W34	.563	11950	1.2	45	-N				.78				4 4 4 5
HTPR	03	1727	1828D	1740	N03	W35	.573	11950	1.1	61D	-N		C	1740	1.65	2.00			FI
HUAN	03	1730	1755		S02	W35	.579	11950	1.1	25	-N	1	C	1736	.36	.44			E
CANR	03	1731	1810	1741	N01	W34	.560	11950	1.2	39	-N	2	V	1741	.60	.70			
RAMY	03	1737E	1822	1738U	S05	W33	.558	11950	1.3	45D	-N	3	V		.52				DE
45095	03	1734	1833	(1750)	N06	W36	.588	11939	1.0	59	*-B				1.73				2 2 2 5
HCMA	03	1730E	1833D		N06	W36	.588	11939	1.0	63D	1B		C	1751	1.96	2.50			E
HUAN	03	1737	1832		N05	W35	.573	11939	1.1	55	-B	1	C	1749	1.50	1.87			E
896 HUAN	03	1919	1923		S02	W36	.593	11950	1.1	4	--F	1	C						2
GRP45097	03	2018	2027	2021	S02	W37	.606	11950	1.1	9	--F				.29				2 2 2 2
HUAN	03	2018	2027	2021	S02	W36	.593	11950	1.1	9	-F	1	C	2021	.26	.32			D
HCMA	03	2018	2023D		S01	W37	.605	11950	1.1	5D	-N		P	2023	.31	.40			E
	03	2055	2102	NO FLARE PATROL															
	03	2212	0030	NO FLARE PATROL															
	04	0031	0034	NO FLARE PATROL															
	04	0251	0300	NO FLARE PATROL															
	04	0456	0505	NO FLARE PATROL															
GRP45098	04	0502E	0527	0507	S09	E76	.973	11949	9.9	25	-N				.68				3 3 3 3
CRON	04	0502E	0521		S11	E75	.970	11949	9.8	19D	-N	3	V		.50				
CATA	04	0505E	0515	0505	S08	E74	.964	11949	9.8	10D	-N		P	0505	.29			(188)	
ABST	04	0505E	0545	0508	S09	E78	.981	11949	10.1	40D	1F		P	0508	1.26				EJZ
45098	04	0526	0545	0528	S12	E74	.966	11949	9.8	19	*-N				.61				5 5 5 5
MANI	04	0520E	0542	0528	S10	E72	.956	11949	9.6	22D	-N	2		0528	.62	1.37			
ABST	04	0525E	0610	0526	S14	E79	.985	11949	10.2	45D	1N		P	0526	1.18				EJ
HTPR	04	0526E	0540		S12	E72	.957	11949	9.6	14D	-F		C	0526	.21				
CRON	04	0527E	0536	0527	S12	E75	.970	11949	9.9	9D	-N	3	V	0527	.50				
CATA	04	0530	0535	0530	S11	E74	.966	11949	9.8	5	-N		C	0530	.52			(202)	E
GRP45099	04	0533	0557	0543	N13	W86	.997	11948	27.8	24	--F				.37				2 2 2 5
HTPR	04	0526E	0555	0542	N13	W85	.995	11948	27.9	29D	-F		C	0542	.10				D
ABST	04	0539	0559	0543	N13	W87	.998	11948	27.7	20	-F		P	0543	.63				DG
GRP45100	04	0623	0643	0626	N13	E51	.781	11947	8.1	28	--F				.61				2 2 2 5
HTPR	04	0623	0638	0626	N12	E53	.801	11947	8.2	15	-F		C	0626	.52	.90			
CAPS	04	0625E	0648D		N13	E49	.759	11947	7.9	23D	-N	3	P	0630	.70	1.10		(160)	C

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE 1972 JUL	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
GRP45101	04	0719	0749	0722	S12	E75	.970	11949	9.9	30	-N				.70				4 4 4 7
ABST	04	0716	0808D	0723	S14	E79	.985	11949	10.2	52D	1F		P	0723	1.80				DJ
CATA	04	0720	0740D	0720	S10	E73	.961	11949	9.8	20D	-B		P	0720	.40			(206)	
HTPR	04	0720	0800	0722	S12	E72	.957	11949	9.7	40	-F		C	0722	.21				E
CRON	04	0722E	0726	0722U	S12	E74	.966	11949	9.9	4D	-N	3	V	0722	.40				
GRP45105	04	1133	1159	1134	S12	E71	.952	11949	9.8	26	-N				.47				3 3 3 5
HTPR	04	1129	1150	1134	S14	E72	.958	11949	9.9	21	-F		C	1134	.41				EJ
CAPS	04	1133E	1218D		S10	E70	.945	11949	9.7	45D	-B	3	V	1136	.50			(235)	C
CANR	04	1136	1150		S11	E70	.946	11949	9.7	14	-N	2	V		.50	1.20			
GRP45106	04	1154	1220	1201	S15	E71	.954	11949	9.8	26	-N				1.08				2 2 2 5
HTPR	04	1154	1220	1201	S13	E70	.947	11949	9.7	26	-F		C	1201	.62				
ARCE	04	1158E	1215D		S16	E71	.955	11949	9.8	17D	1B		C	1200	1.53				BT
GRP45108	04	1313	1316	1314	S10	E65	.914	11949	9.4	3	--F				.13				3 2 2 8
HTPR	04	1312	1316	1314	S11	E64	.908	11949	9.3	4	-F		C	1314	.10				D
HUAN	04	1313	1316	1313	S09	E65	.913	11949	9.4	3	-F	1	C	1313	.15				D
CAPS	04	1313E	1318		S09	E65	.913	11949	9.4	5D	-N	3	V	1327	.20			(170)	C
112 HUAN	04	1648	1653	1649	S12	W24	.474	11940	2.9	5	--F	1	C	1649	.26	.29			E 3
GRP45113	04	1715	1747	(1719)	S12	E68	.935	11949	9.8	32	--F				.54				2 2 2 3
HUAN	04	1714	1747		S11	E68	.934	11949	9.8	33	-N	1	C	1719	.77				E
MCMA	04	1716	1721D		S12	E68	.935	11949	9.8	5D	-F		P	1718	.31	.90			E
GRP45114	04	1804	1829	1810	S11	E67	.928	11949	9.8	25	-B				.69				3 2 2 3
CANR	04	1803	1811		S11	E66	.922	11949	9.7	8	-N	2	V	1807	.70	1.00			
HUAN	04	1805	1846	1810	S10	E67	.927	11949	9.8	41	-B	1	C	1810	.67				E
MCMA	04	1817E	1822D		S12	E68	.935	11949	9.9	5D	-N		P	1822	.52	1.50			E
115 HUAN	04	1915	1923	1919	S09	E62	.891	11949	9.5	8	--N	2	C	1919	.26	.54			D 2
116 HUAN	04	2143	2150	2145	S10	E66	.921	11949	9.9	7	--F	2	C	2145	.26				D 1
117 HUAN	04	2213	2219D		S09	E64	.906	11949	9.7	6D	-N	1	C	2216	.46				E 2
	04	2219	2220	NO FLARE PATROL															
	04	2256	0004	NO FLARE PATROL															
	05	0203	0220	NO FLARE PATROL															
119 TACH	05	0410E	0414		S05	W39	.641	11940	2.2	4D	-N		V	0410	.91	1.19	2.01	54	D 3
GRP45121	05	0712	0741	0715	S12	W32	.578	11940	2.9	29	--F				.37				4 4 4 9
BUCA	05	0710E	0755D		S11	W32	.572	11940	2.9	45D	-F		P	0715	.73	.90			D
ATHN	05	0712	0734	0715	S12	W32	.578	11940	2.9	22	-F	1	C		.17				DE
HTPR	05	0713	0735	0714	S12	W33	.590	11940	2.8	22	-F		C	0714	.31	.40			E
CAPS	05	0716E	0730D		S11	W30	.546	11940	3.1	14D	-F	2	V	0720	.25	.30		(156)	C
GRP45124	05	1114	1132	1116	N09	E38	.618	11947	8.3	18	--F				1.48				3 3 3 9
ATHN	05	1113	1130	1116	N09	E38	.618	11947	8.3	17	-F	2	C		.50				DE
RAMY	05	1114	1135	1116U	N09	E37	.605	11947	8.2	21	-F	2	C		.84				DE
WEND	05	1115E	1132		N09	E38	.618	11947	8.3	17D	1F		V		3.09				
GRP45127	05	1500	1513	1502	S11	E57	.852	11949	9.9	13	-N				.74				7 7 6 11
HUAN	05	1459	1509	1502	S10	E56	.842	11949	9.8	10	-N	1	C	1502	.52	.88			E
RAMY	05	1500	1517	1502	S11	E55	.834	11949	9.8	17	-N	3	C		1.02				F
ATHN	05	1500E	1513	1503	S13	E58	.865	11949	10.0	13D	-N	2	V		.83				DE
MCMA	05	1500	1510	1501	S11	E56	.844	11949	9.8	10	-N		C	1501	.41	.60			E
CATA	05	1500	1505D	1500	S11	E55	.834	11949	9.8	5D	-N		P	1500	.87	1.52		(193)	
BOUL	05	1502	1512	1503	S11	E58	.861	11949	10.0	10	-F	3	V						O
CAPS	05	1502	1516D		S10	E60	.876	11949	10.1	14D	-N	2	V	1502	.80	1.60		(188)	
GRP45131	05	1748	1754	1749	S12	W38	.653	11940	2.9	6	--F				.55				2 2 1 5
PALE	05	1747	1755	1749	S12	W38	.653	11940	2.9	8	-F	3	C		.55				
HUAN	05	1748	1753	1749	S12	W38	.653	11940	2.9	5	-F	1	C						
GRP45132	05	1753	1800	1754	S12	E55	.836	11949	9.9	7	--F				.47				2 2 2 5
PALE	05	1752	1801	1754	S12	E55	.836	11949	9.9	9	-N	3	C		.63				F
HUAN	05	1753	1759	1754	S11	E55	.834	11949	9.9	6	-F	1	C	1754	.31	.54			E
GRP45135	05	2032	2045	2035	S11	E54	.825	11949	9.9	13	--F				1.06				2 2 2 3
PALE	05	2032	2042D	2034	S11	E55	.834	11949	10.0	10D	-F	3	C		1.08				
HUAN	05	2032	2045	2035	S10	E52	.803	11949	9.8	13	-N	1	C	2035	1.03	1.72			E
136 BOUL	05	2058	2125	2100	N06	W61	.873	11939	1.3	27	--F	3	V						2

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE 1972 JUL	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
GRP45138	06	0200	0223	0206	N05	W70	.939	11939	30.8	23	-N				.70				3 2 2 4
CULG	06	0156	0251E	0205	N08	W70	.944	11939	30.8	55	1N			0205	1.40				
TEHR	06	0158E	0225	0206U	N05	W70	.939	11939	30.8	27D	-N	3	V		.85				F
PALE	06	0202	0221	0205	N04	W69	.933	11939	30.9	19	-N	1	C		.55				F
GRP45139	06	0442E	0457	0444	S14	E50	.794	11949	9.9	15	--N				.21				2 2 2 5
TEHR	06	0442E	0449	0443U	S13	E50	.791	11949	9.9	7D	-N	4	V		.09				DE
ATHN	06	0442E	0505	0444	S14	E50	.794	11949	9.9	23D	-N	2	V		.33				DE
GRP45140	06	0645	0725	0651	N07	W75	.965	11939	30.7	40	1N				1.24				7 7 7 8
HTPR	06	0645	0720	0646	N07	W75	.965	11939	30.7	35	-N		C	0646	.52				
ATHN	06	0645E	0717	0652	N09	W72	.949	11939	30.9	32D	1N	3	V		1.16				F
MONT	06	0645	0737	0703	N06	W78	.977	11939	30.4	52	1N		C	0703	2.27				
CRON	06	0645E	0722	0646U	N06	W75	.965	11939	30.7	37D	1F	3	V	0646	.90				
CRON	06	0645E	0722	0653	N06	W75	.965	11939	30.7	37D	1F	3	V	0653	.80				
TEHR	06	0647E	0715	0650U	N07	W74	.960	11939	30.7	28D	-N	3	V		1.00				F H
CAPS	06	0647E	0736D		N06	W75	.965	11939	30.7	49D	1B	2	P	0657	.60			(234)	CF
BUCA	06	0650E	0729D		N05	W75	.965	11939	30.7	39D	1F		P	0656	2.21				E
GRP45143	06	1011	1026	1012	N12	W66	.912	11939	1.5	15	--F				.25				3 2 2 10
CATA	06	1010	1025	1010	N12	W66	.912	11939	1.5	15	-N		C	1010	.29			(180)	
HTPR	06	1012	1026	1014	N12	W65	.905	11939	1.5	14	-F		C	1014	.21				D
ATHN	06	1018E	1033	1020	N08	W76	.969	11939	30.7	15D	-N	3	V		.33				DE
GRP45145	06	1101	1129	1106	N09	W69	.932	11939	1.3	28	1N				1.13				10 10 10 11
ATHN	06	1059E	1125	1102	N11	W68	.926	11939	1.4	26D	-N	3	V		.66				F
MCMA	06	1059	1135	1101	N09	W68	.926	11939	1.4	36	-N		C	1101	.52	1.50			E
CATA	06	1100	1125	1100	N10	W69	.932	11939	1.3	25	1N		C	1100	1.84			(186)	
HTPR	06	1100	1128	1104	N10	W67	.919	11939	1.4	28	-N		C	1104	.72				E
MONT	06	1100	1118	1106	N10	W70	.938	11939	1.2	18	-N		C	1106	1.13				
UPIC	06	1103	1140	1109	N09	W72	.949	11939	1.1	37	2N		C	1109	2.94				
CANR	06	1103	1130		N08	W68	.926	11939	1.4	27	1F	2	V	1104	.80	1.80			
CAPS	06	1103E	1133D		N03	W70	.939	11939	1.2	30D	1B	1	S	1109	1.40			(208)	C
RAMY	06	1104E	1125	1104U	N10	W66	.912	11939	1.5	21D	-N	2	C		.74				F
TEHR	06	1105E	1135	1115	N06	W68	.926	11939	1.4	30D	-N	4	V		1.39				F
GRP45148	06	1134	1217	1142	S12	E44	.724	11949	9.8	43	--N				.27				7 6 5 10
HTPR	06	1126	1225	1146	S11	E43	.709	11949	9.7	59	-N		C	1146	.10	.20			D
RAMY	06	1130	1156	1133	S11	E45	.732	11949	9.9	26	-N	3	V		.46				F
ONDR	06	1134E	1241		S13	E43	.716	11949	9.7	67D	2N		V	1139			4.80		CDHIJ
MCMA	06	1135	1230	1143	S12	E45	.735	11949	9.9	55	-N		C	1143	.21	.30			EKY
CANR	06	1137	1218	1139	S10	E43	.705	11949	9.7	33	-N	3	V	1138	.30				
CATA	06	1140	1200	1140	S12	E44	.724	11949	9.8	20	-B		C	1140	.29	.42		(254)	
ARCE	06	1207E	1229		S10	E44	.717	11949	9.8	22D	-N		C	1210	.42	.60			
9 STATIONS REPORTING GROUP 45151. 4 STATIONS OBSERVING AND NOT REPORTING.																			
GRP45151	06	1230	1317	1237	S09	E40	.666	11949	9.5	47	1N				2.06				9 8 7 13
BOUL	06	1225	1315	1239	S07	E40	.659	11949	9.5	50	1N	1	V						
BOUL	06	1225	1315	1230	S07	E40	.659	11949	9.5	50	1N	1	V						
ARCE	06	1229	1320D	1238	S09	E40	.666	11949	9.5	51D	2B		C	1238	3.93	5.30			F
MCMA	06	1230	1340	1239	S09	E44	.714	11949	9.8	70	1N		C	1239	1.80	2.50			FL
HTPR	06	1230	1310	1234	S08	E42	.687	11949	9.7	40	-F		C	1234	.93	1.30			ETU
ZURI	06	1231	1238	1236	S07	E41	.655	11949	9.6	7	-F			1236	.90	1.20			
RAMY	06	1231E	1314	1235	S10	E40	.669	11949	9.5	43D	-N	3	V		.74				F
UPIC	06	1231	1300	1239	S08	E41	.675	11949	9.6	29	1F		C	1239	2.94				
CATA	06	1235	1240D	1235	S10	E38	.645	11949	9.4	5D	-B		P	1235	.98	1.29		(214)	
HERS	06	1240E	1246D	1240	S10	E38	.645	11949	9.4	6D	1F		P	1242	3.11	4.40			F
45151	06	1250E	1320	1250	S09	E40	.666	11949	9.5	30	*-F				.75				2 2 1 12
CATA	06	1250E	1315	1250	S10	E38	.645	11949	9.4	25D	-N		P	1250	.75	.95		(199)	
HUAN	06	1250E	1325U		S08	E41	.675	11949	9.6	35D	1F	1	P						E
GRP45152	06	1358	1414	1402	N06	W78	.977	11939	30.7	16	--F				.44				4 4 2 11
HUAN	06	1356	1413		N05	W80	.984	11939	30.6	17	-N	1	C						
RAMY	06	1356	1413	1358	N05	W75	.965	11939	1.0	17	-F	3	V		.62				DE
MCMA	06	1357	1413	1359	N08	W80	.984	11939	30.6	16	-F		C	1359					E
RAMY	06	1358E	1413	1358U	N06	W78	.977	11939	30.7	15D	-N	2	C		.56				DE
HTPR	06	1402	1418D	1409	N07	W75	.965	11939	1.0	16D	-F		C	1409	.31				
GRP45153	06	1756	1806	1800	N10	E18	.326	11947	8.1	10	--F				.36				2 2 2 3
RAMY	06	1755E	1806	1758U	N09	E18	.321	11947	8.1	11D	-F	3	V		.41				DE
HUAN	06	1757	1806	1801	N11	E18	.332	11947	8.1	9	-F	1	C	1801	.31	.33			E
GRP45154	06	1813	1821	1816	N10	E17	.311	11947	8.0	8	--F				.21				2 2 2 3
RAMY	06	1812	1822	1816	N09	E17	.306	11947	8.0	10	-N	3	V		.21				DE
HUAN	06	1814	1820	1816	N11	E17	.317	11947	8.0	6	-F	1	C	1816	.21	.22			D
156 HUAN	06	1924	1933	1927	S10	E41	.682	11949	9.9	9	--N	1	C	1927	.26	.35			D 2

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH HG	MAX. INT. %	
	1972 JUL																		
157 HUAN	06	2003	2008	2006	S10	E40	.669	11949	9.8	5	--F	1	C	2006	.26	.35			D 2
158 HUAN	06	2104	2115	2111U	S10	E39	.657	11949	9.8	11	--N	1	C	2111	.26	.34			D 2
159 HUAN	06	2137	2142	2139	S10	E39	.657	11949	9.8	5	--F	1	C	2139	.21	.27			D 3
161 PALE	06	2346	0029	2353	N06	E16	.278	11947	8.2	43	--N	2	C		.81				F Z 1
	06	2359	0000	NO FLARE PATROL															
162 PALE	07	0214	0229	0218	S10	E37	.633	11949	9.9	15	--N	3	C		.55				2
163 PALE	07	0221	0232	0224	N11	E13	.257	11947	8.1	11	--F	3	C		.36				F 2
GRP45166	07	0748	0747	0742	S09	E32	.563	11949	9.7	7	--N				.54				5 5 5 6
ATHN	07	0739	0746	0742	S09	E31	.550	11949	9.6	7	-F	2	C		.50				DE
HTPR	07	0739	0746	0741	S09	E33	.576	11949	9.8	7	-F		C	0741	.21	.20			E
MONT	07	0740	0746	0742	S08	E33	.572	11949	9.8	6	-N		C	0742	.72				
TEHR	07	0740	0748	0744	S09	E31	.550	11949	9.6	8	-N	4	V		.56				DE
CATA	07	0748	0750	0740	S09	E30	.536	11949	9.6	10	-B		C	0740	.69	.83		(206)	
GRP45167	07	0756	0811	0801	S10	E33	.581	11949	9.8	15	--F				.61				4 4 4 7
CATA	07	0755	0820	0800	S10	E31	.555	11949	9.7	25	-N		C	0800	1.22	1.45		(199)	
TEHR	07	0755E	0802	0758	S10	E32	.568	11949	9.7	7D	-N	4	V		.37				DE
HONT	07	0757	0801	0759	S11	E35	.612	11949	10.0	4	-F		C	0759	.21				
ARCE	07	0800E	0820	0806	S08	E32	.558	11949	9.7	20D	-F		C	0806	.65	.80			
GRP45169	07	0926	0953	0933	N10	E09	.192	11947	8.1	27	-N				1.87				8 7 7 8
ARCE	07	0920	0957	0931	N11	E08	.189	11947	8.0	37	-N		C	0932	1.78	1.80			F
ZURI	07	0925	0950	0929	N11	E08	.206	11947	8.0	25	-B			0929	.80	.80			
TEHR	07	0925	0952	0935	N10	E09	.192	11947	8.1	27	-N	4	V		1.37				F
ATHN	07	0926	0948	0930	N10	E08	.178	11947	8.0	22	-N	2	C		.50				DE
HTPR	07	0926	0950	0930	N10	E09	.192	11947	8.1	24	-N		C	0930	.62	.60			
MONT	07	0927	0946	0933	N10	E09	.192	11947	8.1	19	-N		C	0933	.72				
CAPS	07	0928E	1001D		N10	E10	.206	11947	8.1	33D	-N	2	P	0932	.90	.90		(164)	C
CATA	07	0930	0955	0940	N11	E08	.189	11947	8.0	25	-B		C	0940	1.62	1.65		(251)	
GRP45170	07	1021	1030	1026	N07	E10	.183	11947	8.2	9	--F				.33				4 4 4 6
TEHR	07	1020	1030	1026	N06	E11	.195	11947	8.3	10	-N	4	V		.37				DE
CAPS	07	1021	1030		N08	E10	.189	11947	8.2	9	-F	3	V	1026	.40	.40		(152)	
MONT	07	1023	1025	1024	N06	E11	.195	11947	8.3	2	-F		C	1024	.21				
ATHN	07	1025E	1036	1027	N06	E09	.162	11947	8.1	11D	-F	3	V		.33				DE
GRP45171	07	1028	1053	1030	N05	W90	1.000	11939	30.7	25	-N				.94				5 5 3 7
HTPR	07	1026	1051D	1030	N04	W90	1.000	11939	30.7	25D	-N		C	1030	.41				
MONT	07	1028	1044	1030	N05	W90	1.000	11939	30.7	16	-N		C	1030	1.13				
CAPS	07	1028E	1115D		N07	W90	1.000	11939	30.7	47D	-N	3	P						
ATHN	07	1029E	1044	1029	N06	W90	1.000	11939	30.7	15D	-N	3	V						F
CATA	07	1030	1050	1030	N05	W98	1.000	11939	30.7	20	1N		C	1030	1.27			(178)	A
GRP45173	07	1120	1152	1126	N11	E07	.177	11947	8.0	32	1N				2.87				9 9 8 10
RAMY	07	1117	1158	1123	N11	E07	.177	11947	8.0	41	1F	3	C		2.32				F
TEHR	07	1118E	1147	1125	N10	E08	.178	11947	8.1	29D	-B	4	V		1.84				F H
TEHR	07	1118E	1147	1125	N10	E08	.178	11947	8.1	29D	-B	4	V		1.84				F H
CAPS	07	1119E	1153D		N10	E10	.206	11947	8.2	34D	-B	3	P	1123	1.50	1.50		(130)	C
HONT	07	1119	1130D	1124	N10	E06	.153	11947	7.9	11D	1N		C	1124	2.58				
CATA	07	1120	1140	1125	N11	E08	.189	11947	8.1	20	1B		C	1125	3.25	3.30		(246)	
MCMA	07	1122E	1200D	1134	N10	E07	.165	11947	8.0	38D	1B		C	1134	2.06	2.10			EF
HTPR	07	1124	1155	1124	N10	E08	.178	11947	8.1	31	1N		C	1124	2.17	2.10			U
KHAR	07	1125E	1125D		N12	E05	.171	11947	7.9		1N		V						D
ABST	07	1126E	1139D	1126	N11	E08	.189	11947	8.1	13D	2N		P	1126	7.20	7.30			BE
GRP45174	07	1320	1333	1322	S12	W62	.895	11940	2.9	13	--F				.24				4 4 3 10
RAMY	07	1319	1334	1321	S11	W60	.870	11940	3.1	15	-F	3	C		.28				DE
ARCE	07	1320E	1340D		S13	W63	.904	11940	2.8	20D	-F		C	1320	.23	.50			
HTPR	07	1320	1330	1323	S12	W62	.895	11940	2.9	10	-F		C	1323	.21	.40			E
HUAN	07	1321	1329		S12	W61	.888	11940	3.0	8	-F	1	C						
RAMY	07	1328E	1337	1328U	S12	W63	.903	11940	2.8	9D	-F	3	V		.15				DE
6 STATIONS REPORTING GROUP 45176. 4 STATIONS OBSERVING AND NOT REPORTING.																			
GRP45176	07	1418	1517	1444	N11	E07	.177	11947	8.1	59	-B				1.68				4 4 4 10
HUAN	07	1415	1513	1442U	N11	E07	.177	11947	8.1	58	-N	1	C	1442	1.13	1.16			E
MCMA	07	1418E	1515		N10	E06	.153	11947	8.0	57D	-B		C	1452	1.29	1.30			E
CATA	07	1420	1505D	1445	N11	E07	.177	11947	8.1	45D	1B		P	1445	2.08	2.11		(254)	E
CAPS	07	1425E	1524D	1444	N10	E08	.178	11947	8.2	59D	1B	2	P	1452	2.20	2.30		(215)	

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE 1972 JUL	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hg	MAX. INT. %	
45176	07	1426	1511	1435	N10	E08	.178	11947	8.2	45	*-N				1.88				3 2 2 11
ZURI	07	1417	1510	1449	N11	E08	.286	11947	8.2	53	1B			1449	3.50	3.60			
LOCA	07	1426	1510	1435	N09	E06	.141	11947	8.1	44	1N		V	1435	2.31	2.40			
RAMY	07	1432E	1512	1435U	N11	E09	.202	11947	8.3	40D	-N	3	V		1.44				F
GRP45177	07	1522	1548	1524	S10	E29	.528	11949	9.8	26	--N				.39				5 5 5 8
HUAN	07	1520	1530	1524U	S09	E29	.522	11949	9.8	10	-N	1	C	1524	.36	.43			E
RAMY	07	1521	1540	1523	S10	E30	.542	11949	9.9	19	-N	3	C		.46				DE
MCMA	07	1522	1555	1524	S11	E27	.508	11949	9.7	33	-N		C	1524	.41	.50			E
HTPR	07	1523	1555	1526	S09	E26	.481	11949	9.6	32	-F		C	1526	.21	.20			
CAPS	07	1525E	1546D		S10	E33	.581	11949	10.1	21D	-N	2	P	1527	.50	.60		(185)	C
HUAN	07	1525	1544	1529	S09	E25	.468	11949	9.5	19	-F	1	C	1529	.26	.29			D
GRP45178	07	1527	1539	1530	N09	E05	.129	11947	8.0	12	--N				.51				3 3 3 6
HUAN	07	1527	1536	1529	N10	E04	.133	11947	7.9	9	-F	1	C	1529	.31	.31			E
CAPS	07	1527E	1540D		N10	E08	.178	11947	8.2	13D	-N	2	P	1529	.80	.80			
MCMA	07	1529E	1542	1531	N08	E03	.094	11947	7.9	13D	-N		C	1531	.41	.40			E
GRP45179	07	1659	1708	1701	N10	E03	.124	11947	7.9	9	--F				.27				3 3 3 8
HTPR	07	1659	1708	1702	N09	E02	.102	11947	7.9	9	-F		C	1702	.21	.20			D
HUAN	07	1659	1704	1700	N10	E03	.124	11947	7.9	5	-F	1	C	1700	.21	.21			D
CANR	07	1700	1712	1701	N10	E05	.142	11947	8.1	12	-N	2	V	1701	.40	.40			
GRP45180	07	1725	1740	1727	N10	E04	.133	11947	8.0	15	--N				.65				5 5 4 6
CANR	07	1723	1735	1726	N11	E06	.166	11947	8.2	12	-N	2	V	1726	1.20	1.20			
RAMY	07	1724	1740	1727	N10	E05	.142	11947	8.1	16	-F	3	V		.52				DE
HUAN	07	1725	1736	1727	N10	E03	.124	11947	8.0	11	-N	2	C	1727	.46	.47			E
HTPR	07	1725	1740	1728	N10	E03	.124	11947	8.0	15	-F		C	1728	.41	.40			E
BOUL	07	1726	1750	1728	N09	E03	.109	11947	8.0	24	-N	2	V						
	07	2128	2129	NO FLARE PATROL															
	07	2138	2147	NO FLARE PATROL															
182 PALE	07	2304	2315	2310	N10	E01	.115	11947	8.0	11	--F	3	C		.36				F 1
	07	2358	0003	NO FLARE PATROL															
	08	0005	0026	NO FLARE PATROL															
GRP45183	08	0026E	0047	0031	S07	E21	.399	11949	9.6	21	-B				1.03				2 2 2 2
PALE	08	0026E	0044	0031U	S08	E22	.420	11949	9.7	18D	-N	2	V		.93				F
PALE	08	0026E	0045D	0031U	S07	E21	.399	11949	9.6	19D	-N	2	C		.91				F
HITK	08	0035E	0047D		S06	E20	.377	11949	9.5	12D	-B		C	0036	1.13	1.20			E
185 ATHN	08	0432E	0446	0433	S10	E22	.435	11949	9.8	14D	--N	2	V		.66				F 3
GRP45186	08	0535E	0550	0537	N06	W03	.067	11947	8.0	15	--F				.53				2 2 2 4
CAPF	08	0535E	0553	0535	N06	W01	.045	11947	8.2	18D	-N		P	0535	.73	.75			CE
ATHN	08	0538E	0547	0538U	N05	W04	.074	11947	7.9	9D	-F	3	V		.33				DE
GRP45187	08	0642	0707	0644	S09	E19	.387	11949	9.7	25	--F				.72				4 4 4 8
CAPS	08	0636	0720D		S09	E20	.400	11949	9.8	44D	-N	3	V	0645	.80	.90		(189)	CH
HTPR	08	0648	0700	0642	S08	E18	.364	11949	9.6	20	-F		C	0642	.41	.40			
ATHN	08	0645E	0650D	0645U	S10	E20	.409	11949	9.8	5D	-F	2	V		.50				DE
CATA	08	0645	0700	0645	S08	E18	.364	11949	9.6	15	-N		C	0645	1.16	1.25		(174)	
GRP45188	08	0729	0749	0732	S09	E20	.400	11949	9.8	20	-N				1.35				6 5 5 9
ZURI	08	0725	0745	0733	S08	E17	.301	11949	9.6	20	-B			0733	1.60	1.80			
BUCA	08	0726E	0743D		S08	E20	.392	11949	9.8	17D	1N		C	0732	2.21	2.40			
CAPS	08	0727E	0810D		S09	E20	.400	11949	9.8	43D	-B	3	V	0735	.70	.80		(220)	CH
ATHN	08	0738E	0745D	0732	S10	E18	.383	11949	9.7	15D	-B	2	V		.83				DE
KHAR	08	0738E	0731D		S09	E21	.414	11949	9.9	1D	1N		P	0731	2.27	2.50	1.20		E
MONT	08	0731	0738	0732	S08	E20	.392	11949	9.8	7	-N		C	0732	.72				
45188	08	0748	0810	0754	S10	E20	.409	11949	9.8	22	*-N				.83				6 5 5 11
BUCA	08	0743E	0805D		S09	E21	.414	11949	9.9	22D	-F		P	0757	1.10	1.20			
ZURI	08	0746	0820	0751	S09	E16	.290	11949	9.5	34	-N			0751	1.90	2.10			
HTPR	08	0746	0810	0750	S11	E20	.418	11949	9.8	24	-F		C	0750	.21	.20			
CATA	08	0755	0805	0755	S11	E20	.418	11949	9.8	10	-B		C	0755	.80	.89		(254)	
ABST	08	0756E	0801D	0758	S10	E20	.409	11949	9.8	5D	-N		P	0758	1.44	1.60			EZ
ARCE	08	0800E	0820D		S11	E21	.430	11949	9.9	20D	-F		C	0800	.59	.60			B

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH HG	MAX. INT. %	
	1972 JUL																		
GRP45190	08	0853	0910	0900	S08	E20	.392	11949	9.9	17	--N				.40				5 5 5 8
ARCE	08	0845E	0925D		S09	E20	.400	11949	9.9	40D	-N		C	0855	.36	.40			
CAPS	08	0853E	09130		S08	E20	.392	11949	9.9	20D	-N	2	V	0858	.40	.40		(180)	C
CATA	08	0855	0905	0900	S09	E19	.387	11949	9.8	10	-N		C	0900	.58	.63		(199)	
TEHR	08	0856	1027	1005	S09	E20	.400	11949	9.9	91	-N	4	V		.65				F
TEHR	08	0856	1027	1019	S09	E20	.400	11949	9.9	91	-N	4	V		.46				F
MONT	08	0857	0900	0858	S08	E20	.392	11949	9.9	3	-F		C	0858	.21				
TEHR	08	0900E	0908	0902	S08	E21	.406	11949	9.9	8D	-N	4	V		.46				F
GRP45191	08	1130	1153	1134	S10	E19	.396	11949	9.9	23	--N				.49				3 3 3 7
HTPR	08	1129	1155	1134	S11	E18	.392	11949	9.8	26	-F		C	1134	.21	.20			U
RAMY	08	1130	1152	1133	S11	E18	.392	11949	9.8	22	-N	2	C		.56				DE
CAPS	08	1133E	1153D		S09	E20	.400	11949	10.0	20D	-N	2	P	1143	.70	.80		(166)	CH
GRP45194	08	1326	1357	1331	N11	W07	.176	11947	8.0	31	-B				1.21				9 8 8 12
BOUL	08	1323	1354	1328	N11	W08	.188	11947	8.0	31	-N	3	V	1328	.20	2.00			
ZURI	08	1325	1355	1331	N10	W05	.248	11947	8.2	30	-B			1331	1.80	1.90			
CATA	08	1325	1355	1335	N11	W07	.176	11947	8.0	30	-B		C	1335	1.73	1.77		(246)	
LOCA	08	1326	1356	1332	N10	W06	.152	11947	8.1	30	1N		V	1332	2.10	2.10			
HUAN	08	1326	1357	1331	N12	W07	.189	11947	8.0	31	-B	2	C	1331	1.19	1.20			E
HTPR	08	1326	1342D	1328	N10	W08	.177	11947	8.0	16D	-N		C	1328	.41	.40			E
RAMY	08	1327	1400	1331	N10	W06	.152	11947	8.1	33	-B	3	V		1.55				U F
ATHN	08	1328E	1358	1332	N10	W08	.177	11947	8.0	30D	-B	3	V		1.32				U F
CAPS	08	1333E	1400D		N12	W02	.150	11947	8.4	27D	-B	2	V	1333	1.20	1.20		(201)	CF
GRP45195	08	1427	1439	1428	S10	E16	.358	11949	9.8	12	--N				.57				3 3 3 10
BOUL	08	1425	1442	1427	S09	E15	.335	11949	9.7	17	-N	3	V	1427	.60	.60			
HUAN	08	1426	1439	1427	S11	E16	.368	11949	9.8	13	-N	2	C	1427	.41	.44			E
CATA	08	1430	1435	1430	S11	E16	.368	11949	9.8	5	-N		C	1430	.69	.75		(199)	
GRP45196	08	1516	1527	1518	S11	E17	.380	11949	9.9	11	--F				.63				5 5 4 9
RAMY	08	1515	1526	1517	S11	E17	.380	11949	9.9	11	-F	2	C		.56				DE
HUAN	08	1515	1523	1517	S11	E16	.368	11949	9.8	8	-F	1	C						
CAPS	08	1516E	1531D		S09	E18	.373	11949	10.0	15D	-N	1	V	1516	.80	.90		(182)	C
MCMA	08	1517E	1517D		S11	E16	.368	11949	9.8		-N		P	1517	.5<	.60			E
LOCA	08	1517	1529	1520	S11	E16	.368	11949	9.8	12	-F		V	1520	.63	.70			
GRP45197	08	1740	1751	1744	S10	E15	.345	11949	9.9	11	--N				.48				2 2 2 6
HUAN	08	1739	1750	1743	S10	E15	.345	11949	9.9	11	-N	2	C	1743	.36	.38			E
CANR	08	1740	1751	1744	S10	E15	.345	11949	9.9	11	-N			1744	.60	.70			
GRP45198	08	1832	1911	1836	S12	E19	.415	11949	10.2	39	--F				.80				4 4 4 5
HUAN	08	1831	1857	1836	S12	E17	.391	11949	10.0	26	-F	2	C	1836	.21	.22			D
BOUL	08	1831	1900	1835	S12	E19	.415	11949	10.2	29	-F	3	V	1835	1.70	2.00			
MCMA	08	1832	1852		S12	E18	.403	11949	10.1	20	-N		C	1843	.41	.40			EH
RAMY	08	1833	1854	1838	S14	E19	.435	11949	10.2	21	-F	2	C		.65				DE
HUAN	08	1835	1911		S08	E24	.448	11949	10.6	36	-F	2	C	1840	.21	.23			E
	08	2100	2105	NO FLARE PATROL															
	08	2211	0002	NO FLARE PATROL															
GRP45201	09	0749	0753	0749	N12	W17	.322	11947	8.1	4	--N				.82				2 2 2 7
ABST	09	0747	0751	0747	N12	W16	.307	11947	8.1	4	-N		C	0747	1.35	1.40		71	EJV
CATA	09	0750	0755	0750	N11	W17	.315	11947	8.1	5	-N		C	0750	.29	.30		(178)	
GRP45202	09	0927	0955	0934	N11	W19	.345	11947	8.0	28	-F				1.56				8 8 7 10
ARCE	09	0920E	0930D		N11	W18	.330	11947	8.0	10D	-F		C	0925	.09	.10			T
ABST	09	0924E	0954	0934	N12	W17	.322	11947	8.1	30D	1F		P	0934	4.68	5.00		71	FJ
ARCE	09	0925E	1000D		N12	W19	.351	11947	8.0	35D	-F		C	0935	.74	.80			
CANR	09	0927	1000	0938	N11	W19	.345	11947	8.0	33	-F	3	V	0938	1.30	1.30			
KHAR	09	0928E	0940D		N13	W19	.358	11947	8.0	12D	1F		P	0940	1.70	1.90	1.80		D
CAPS	09	0929E	0955		N11	W14	.270	11947	8.3	26D	-N	3	P	0941	1.00	1.00		(162)	UHL
CATA	09	0930	0955	0930	N10	W20	.355	11947	7.9	25	-N		C	0930	.52	.55		(178)	
ATHN	09	0934E	0948D	0934U	N10	W21	.371	11947	7.8	6D	-N	2	V		.99				F
ONDR	09	0937E	0947		N10	W22	.386	11947	7.8	10D	-N		V	0941			1.90		CEH
GRP45203	09	1506	1523	1512	S10	E03	.242	11949	9.9	17	--N				.68				6 6 5 7
CAPS	09	1504E	1521D		S10	E05	.252	11949	10.0	17D	-B	3	V	1508	.80	.80		(130)	CF
RAMY	09	1504	1525	1513U	S10	E03	.242	11949	9.9	21	-N	3	C		.52				DE
ATHN	09	1504	1525	1508	S12	E03	.275	11949	9.9	21	-F	3	V		.50				DE
ONDR	09	1506E	1529	1519	S10	E03	.242	11949	9.9	23D	1N		V	1519			2.00		CEH
BOUL	09	1507	1515	1508	S10	E03	.242	11949	9.9	8	-N	1	V	1508	1.00	1.00			
CANR	09	1511	1520	1512	S10	E02	.239	11949	9.8	9	-N	3	V	1512	.60	.60			
GRP45204	09	2020	2054	2028	S08	W03	.209	11949	9.6	34	-N				1.76				3 3 2 3
RAMY	09	2020	2055	2028	S08	W04	.214	11949	9.5	35	-N	3	C		.93				F
VORO	09	2023E	2052		S08	W02	.206	11949	9.7	29D	1N		C	2028	2.59	2.63		71	E
HUAN	09	2027E	2028D		S07	W03	.193	11949	9.6	1D	-N	1	P						E

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE 1972	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
	JUL																		
	09	2305	0000	NO FLARE PATROL															
285 CULG	09	2309	0106	2344	N09	W04	.225	11957	9.7	117	1N			2344	3.50	3.50			1
GRP45206	10	0822	0932	0831	S05	W12	.257	11949	9.4	70	1B				2.32				8 8 8 11
ARCE	10	0808E	0941D	0833	S08	W08	.246	11949	9.7	93D	1B		C	0833	2.73	2.80			HF
CRON	10	0820	0855	0823	S07	W11	.266	11949	9.5	35	-F	1	C	0823	.54	.54			
MONT	10	0828	0937	0842	S08	W10	.267	11949	9.6	77	1B		C	0842	2.58				
ABST	10	0821	0955	0833	S07	W09	.243	11949	9.7	94	2B		C	0833	5.40	5.60		100	EZ
ATHN	10	0822	0912	0825	S08	W10	.267	11949	9.6	50	-N	3	C		1.82				F
HTPR	10	0822	0930	0829	S08	W12	.289	11949	9.4	68	-N		C	0829	.62	.60			E
CATA	10	0825	0925	0835	S07	W10	.254	11949	9.6	60	1B		C	0835	2.90	3.00		(282)	
CAPS	10	0825E	0922D		N11	W26	.450	11949	8.4	57D	1B	2	P	0829	2.00	2.30		(243)	BEF
GRP45207	10	1101	1113	1106	N07	W33	.545	11947	8.0	12	--F				.24				3 3 3 10
ATHN	10	1100	1113	1105	N07	W34	.559	11947	7.9	13	-F	3	C		.33				DE
HTPR	10	1102	1112	1103	N07	W33	.545	11947	8.0	10	-F		C	1103	.21	.30			EK
HTPR	10	1102	1112	1108	N07	W33	.545	11947	8.0	10	-F		C	1108	.21	.30			EK
TEHR	10	1108E	1114	1110U	N06	W32	.529	11947	8.1	6D	-N	4	V		.19				DE
GRP45208	10	1518	1550	1522	S10	W12	.313	11949	9.7	32	--N				.89				6 6 6 9
RAMY	10	1514	1605	1522	S08	W14	.314	11949	9.6	51	-F	3	C		1.24				F
ATHN	10	1517	1551D	1519U	S10	W12	.313	11949	9.7	34D	-N	2	C		.99				DE
HTPR	10	1518	1530	1520	S10	W12	.313	11949	9.7	12	-F		C	1520	.52	.50			
BOUL	10	1518	1532	1521	S13	W11	.343	11949	9.8	14	-F	2	C	1521	.54	.57			
CAPS	10	1519E	1600D		S10	W10	.293	11949	9.9	41D	-B	2	V	1521	1.00	1.00		(205)	C
MCMA	10	1519	1600D	1526	S10	W11	.303	11949	9.8	41D	-N		C	1526	1.03	1.00			E
GRP45209	10	1820	1851	1824	N09	W34	.562	11947	8.2	31	--F				.41				5 5 4 5
HTPR	10	1815	1829D	1828	N09	W33	.547	11947	8.3	14D	-F		C	1828	.41	.50			
PALE	10	1818E	1840	1821U	N09	W31	.518	11947	8.4	22D	-N	3	V		.62				ZDE
MCMA	10	1821E	1855		N10	W32	.535	11947	8.4	34D	-F		C	1822	.41	.50			E
BOUL	10	1822	1857	1824	N08	W36	.588	11947	8.1	35	-F	3	V						
CANR	10	1825	1850		N09	W36	.590	11947	8.1	25	-N	2	V	1826	.28	.30			
218 MCMA	10	1953	2004D	1957	S09	W13	.313	11949	9.9	11D	--N		C	1957	.26	.30			DL 1
	10	2002	2005	NO FLARE PATROL															
	10	2006	2020	NO FLARE PATROL															
	10	2208	2227	NO FLARE PATROL															
	10	2350	0006	NO FLARE PATROL															
	11	0200	0201	NO FLARE PATROL															
GRP45212	11	0651	0700	0653	S09	W18	.376	11949	9.9	9	--N				.79				3 3 3 5
ATHN	11	0648	0659	0652	S09	W19	.389	11949	9.9	11	-N	2	C		.33				DE
ABST	11	0649	0700	0652	S08	W17	.354	11949	10.0	11	-N		C	0652	1.80	1.90		86	EJ
CATA	11	0655	0708	0655	S09	W18	.376	11949	9.9	5	-N		C	0655	.23	.25		(188)	
GRP45213	11	0858	0907	0901	S08	W19	.381	11949	9.9	9	--N				.63				5 5 5 7
HTPR	11	0855	0908	0901	S08	W19	.381	11949	9.9	13	-F		C	0901	.52	.60			H
CRON	11	0857	0908		S09	W20	.403	11949	9.9	11	-F	3	V		.50				
CAPS	11	0859E	0908		S08	W18	.367	11949	10.0	9D	-N	1	V	0901	.80	.90		(189)	C
TEHR	11	0900E	0907	0902U	S08	W18	.367	11949	10.0	7D	-N	4	V		.19				DE H
CATA	11	0900	0905	0900	S08	W19	.381	11949	9.9	5	-B		C	0900	1.16	1.26		(229)	
GRP45216	11	1353	1507	1404	S10	W24	.464	11949	9.8	74	1N				3.17				7 7 7 9
ATHN	11	1349	1504	1401	S11	W29	.537	11949	9.4	75	1N	3	C		4.29				F
CATA	11	1358	1455	1410	S11	W25	.485	11949	9.7	65	1B		C	1410	3.71	4.28		(232)	
TEHR	11	1352	1551D	1410	S08	W19	.381	11949	10.2	119D	1B	4	V		2.41				F U
RAMY	11	1353	1455	1359	S11	W25	.485	11949	9.7	62	1N	3	C		2.48				F
BOUL	11	1356	1512	1359	S12	W26	.505	11949	9.6	76	1N	3	V	1359	3.20	3.80			
HTPR	11	1356	1510	1359	S10	W27	.504	11949	9.6	74	-N		C	1359	1.13	1.30			U
CAPS	11	1358E	1424D	1413	S09	W20	.403	11949	10.1	26D	2N	1	P	1413	5.00	5.50		(216)	CF
RAMY	11	1458E	1515D	1504U	S11	W24	.472	11949	9.8	17D	-F	2	V		1.24				F
GRP45217	11	1631	1648	1634	S03	W60	.869	11951	7.2	17	--F				.21				2 2 1 5
BOUL	11	1631	1650	1632	S03	W59	.860	11951	7.3	19	-F	3	V						
HTPR	11	1631	1645	1636	S02	W60	.868	11951	7.2	14	-F		C	1636	.21	.40			E
GRP45218	11	2028	2045	2038	S09	W29	.525	11949	9.7	17	--N				.60				4 4 4 5
RAMY	11	2026	2045	2029	S08	W29	.519	11949	9.7	19	-N	3	C		.56				DE
BOUL	11	2028	2048	2038	S07	W27	.486	11949	9.8	28	-N	3	V	2038	.85	.90			
MCMA	11	2028	2040D	2038	S10	W29	.531	11949	9.7	12D	-B		C	2038	.52	.60			E
HUAN	11	2028	2041	2029	S10	W30	.544	11949	9.6	13	-N	1	C	2029	.46	.55			

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	DATE 1972 JUL	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY			COND.	TYPE	TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
219 RAMY	11	2127	2141	2129	S02	W57	.841	11951	7.6	14	--F	3	C		.46				DE 2
	11	2225	2305	NO FLARE PATROL															
	12	0125	0145	NO FLARE PATROL															
5 STATIONS REPORTING GROUP 45221. 3 STATIONS OBSERVING AND NOT REPORTING.																			
GRP45221	12	0817	0901	0821	N12	W49	.756	11957	8.7	44	-F				1.25				5 4 3 9
ABST	12	0812	0817D	0814	N14	W46	.724	11957	8.9	5D	-N		P	0814	1.08	1.60			EJ
CATA	12	0815	0905	0815	N13	W47	.734	11957	8.8	50	-N		C	0815	.87	1.27		(182)	
CAPS	12	0815E	0815D		N06	W56	.827	11957	8.1		-N	1	S						
ABST	12	0817	0914	0822	N14	W46	.724	11957	8.9	57	1F		P	0822	2.17	3.20			EJK
MONT	12	0822E	0838D	0826	N13	W47	.734	11957	8.8	16D	-F		C	0826	.72				
TEHR	12	0830	0843	0834	N13	W44	.699	11957	9.1	13	-N	3	V		.09				DE
45221	12	0842E	0907D	0857	N11	W47	.732	11957	8.8	25	*-F				.25				2 2 2 8
ARCE	12	0842E	0859D		N11	W47	.732	11957	8.8	17D	-F		C	0854	.29	.40			
MONT	12	0850E	0907D	0857	N11	W47	.732	11957	8.8	17D	-F		C	0857	.21				
224 RAMY	12	1108E	1118D	1109U	N09	W58	.846	11947	8.1	10D	--F	2	C		.37				DE 4
GRP45225	12	1130	1149	1136	N13	W50	.768	11957	8.7	19	--F				.89				2 2 2 4
CATA	12	1130	1145D	1135	N13	W49	.757	11957	8.8	15D	-N		P	1135	1.27	1.94		(202)	
ATHN	12	1133E	1149	1136	N12	W51	.778	11957	8.7	16D	-F	3	V		.50				DE
227 HUAN	12	1652	1659	1653	N09	W63	.889	11947	8.0	7	--F	1	C	1653	.26	.54			D 3
	12	2020	2033	NO FLARE PATROL															
	12	2400	0002	NO FLARE PATROL															
GRP45236	13	1604	1653	1610	N12	W66	.911	11957	8.7	49	--N				.44				5 4 4 7
CANR	13	1600	1656		N12	W66	.911	11957	8.7	56	-N	2	V	1603	.50	1.00			
HTPR	13	1605	1650	1612	N13	W65	.904	11957	8.8	45	-F		C	1612	.31	.70			D
RAMY	13	1605	1634D	1608	N10	W64	.896	11957	8.9	29D	-N	3	C		.65				DE
HUAN	13	1606	1639U		N12	W67	.918	11957	8.6	33D	-N	1	C	1617	.31				
ONDR	13	1620	1630D		N09	W68	.925	11957	8.6	10D	-N		V	1625			2.00		
GRP45239	14	0006E	0045	0013	N12	W69	.931	11957	8.8	39	-N				.55				3 2 1 3
BOUL	14	0006E	0045D	0015U	N12	W69	.931	11957	8.8	39D	-N	3	V						
PALE	14	0008E	0023D	0011	N12	W68	.925	11957	8.9	15D	-N	2	C		.55				F
MANI	14	0025E	0035	0025	N12	W70	.937	11957	8.8	10D	-N	1		0025	.52	1.11			
5 STATIONS REPORTING GROUP 45244. 2 STATIONS OBSERVING AND NOT REPORTING.																			
GRP45244	14	0710	0802	0715	N12	W71	.943	11957	9.0	52	-N				1.06				3 3 3 6
ABST	14	0709	0832D	0717	N12	W72	.949	11957	8.9	83D	1N		P	0717	2.17				EJKZ
CATA	14	0710	0755	0710	N11	W70	.937	11957	9.0	45	-N		C	0710	.69			(162)	T
HTPR	14	0712	0740	0718	N12	W71	.943	11957	9.0	28	-F		C	0718	.31				D
45244	14	0725E	0958D	(0730)	N10	W73	.954	11957	8.8	153	*-F				1.10				2 2 1 7
BUCA	14	0725E	0800D		N12	W71	.943	11957	9.0	35D	1F		P	0730	1.10				D
CAPS	14	0725E	0958D		N08	W75	.964	11957	8.7	153D	-N	1	S						B
GRP45249	14	1318	1347	1325	N12	W75	.963	11957	8.9	29	-N				.44				3 3 3 8
ARCE	14	1308E	1355D		N11	W74	.959	11957	9.0	55D	-N		C	1335	.69				H
HUAN	14	1317	1341		N12	W77	.972	11957	8.8	24	-N	1	C	1325	.31				
HTPR	14	1319	1345	1325	N13	W75	.963	11957	8.9	26	-F		C	1325	.31				D
253 HUAN	14	1733	1741		S07	E64	.905	11958	19.5	8	--F	1	C	1736	.31	.70			E 3
GRP45254	14	1755	1826	(1807)	S10	W40	.673	11959	11.7	31	--N				.44				2 2 2 4
HUAN	14	1755	1821		S10	W39	.661	11959	11.8	26	-N	1	C	1807	.36	.48			E
MCMA	14	1759E	1830D		S09	W40	.669	11959	11.7	31D	-N		C	1807	.52	.70			E
GRP45255	14	2004	2033	2008	N11	W83	.991	11957	8.6	29	-N				.26				2 1 1 2
HUAN	14	2004U	2033		N11	W83	.991	11957	8.6	29D	-N	1	C	2020	.26				
PALE	14	2004	2018D	2008U	N12	W81	.986	11957	8.8	14D	-N	2	C		.72				DE
256 HUAN	14	2146	2152	2149	S06	E60	.873	11958	19.4	6	--F	1	C						2
257 CULG	14	2222	2231		S11	E54	.811	11958	19.0	9	1N			2225	1.30	2.50			1
GRP45258	15	0406	0425	0412	S09	W44	.717	11959	11.9	19	-F				.66				4 3 3 4
CULG	15	0400	0447	0416	S05	W44	.694	11959	11.9	47	1N			0416	2.30	3.30			
ATHN	15	0404	0421	0407	S10	W45	.732	11959	11.8	17	-F	2	C		.66				DE
CRON	15	0405	0424	0414	S09	W45	.729	11959	11.8	19	-F	1	C	0414	.32	.47			
TEHR	15	0408	0429	0414	S09	W43	.706	11959	11.9	21	-N	4	V		1.00				F

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	DATE	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	NOAA PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hg	MAX. INT. %	
	1972 JUL																		
GRP45260	15	0530	0549	0534	S10	E55	.835	11958	19.4	19	--N				.37				5 5 5 7
ABST	15	0526	0600	0528	S08	E60	.875	11958	19.7	34	-F		C	0528	.90	1.80			D
CRON	15	0529	0648	0533	S11	E53	.818	11958	19.2	79	-N	1	C	0533	.22	.38			
ATHN	15	0530	0542	0534	S10	E54	.826	11958	19.3	12	-N	3	C		.33				DE
ABST	15	0530	0550	0534	S09	E56	.842	11958	19.4	20	-B		C	0534	.90	1.50		82	D
HTPR	15	0533E	0535D		S11	E54	.828	11958	19.3	2D	-N		C	0535	.21	.40			D
TEHR	15	0536E	0546	0536U	S11	E54	.828	11958	19.3	10D	-N	4	V		.19				F
GRP45261	15	0917	0936	0920	S08	E55	.831	11958	19.5	19	--F				.51				2 2 2 5
HTPR	15	0917	0932	0920	S07	E55	.829	11958	19.5	15	-F		C	0920	.52	.90			
CAPS	15	0923E	0939D		S09	E55	.833	11958	19.5	16D	-N	3	V	0924	.50	.90		(188)	C
GRP45264	15	1123	1215	1129	N10	W90	1.000	11957	8.7	52	1B				1.43				6 6 4 6
KHAR	15	1120E	1158D	1130	N12	W90	1.000	11957	8.7	38D	2B		P	1127	1.70		5.10		D
CANR	15	1123	1215	1135	N12	W89	.999	11957	8.8	52	1N	3	V						
ABST	15	1124	1145	1127	N11	W90	1.000	11957	8.7	21	1B		C	1127	1.80			98	AE
HTPR	15	1124	1140	1127	N10	W90	1.000	11957	8.7	16	-B		C	1127	.41				A
ATHN	15	1125E	1143D	1128U	N12	W89	.999	11957	8.8	18D	1B	2	C						DE
CAPS	15	1125E	1210D		N05	W90	1.000	11957	8.7	45D	-N	2	P	1131	1.80				CF
GRP45265	15	1228	1251	1230	S07	E54	.820	11958	19.6	23	--F				.54				4 4 4 7
RAMY	15	1226E	1232D	1229	S08	E55	.831	11958	19.6	6D	-N	3	V		.46				DE
CANR	15	1227	1255	1232	S08	E56	.841	11958	19.7	28	-F	3	V		.60	.80			
ABST	15	1228	1235E	1229	S05	E53	.806	11958	19.5	7D	1N		P	1229	.90	1.40			DV
HTPR	15	1229	1246	1229	S06	E53	.808	11958	19.5	17	-F		C	1229	.21	.40			D
GRP45266	15	1335	1351	1337	S11	E50	.789	11958	19.3	16	--F				.46				4 4 4 6
RAMY	15	1334	1345D	1336	S12	E48	.771	11958	19.2	11D	-N	2	C		.93				DE
HTPR	15	1335	1350	1337	S10	E50	.786	11958	19.3	15	-F		C	1337	.41	.70			
CAPS	15	1336E	1348D		S11	E50	.789	11958	19.3	12D	-F	2	S	1340	.30	.50		(152)	C
HUAN	15	1345E	1352		S11	E50	.789	11958	19.3	7D	-F	1	P	1345	.21	.33			D
GRP45267	15	1346	1357	1348	S15	E37	.662	11958	18.3	11	--F				.29				2 2 2 7
HUAN	15	1346	1356		S15	E36	.650	11958	18.3	10	-F	1	C	1349	.26	.34			
HTPR	15	1346	1357D	1348	S15	E37	.662	11958	18.3	11D	-F		C	1348	.31	.40			
GRP45269	15	1502	1520	1505	S07	E52	.800	11958	19.5	18	--F				.25				2 2 2 4
RAMY	15	1502	1520	1505	S07	E51	.790	11958	19.5	18	-F	2	C		.28				DE
HUAN	15	1502	1519D	1504	S06	E52	.798	11958	19.5	17D	-F	1	C	1504	.21	.34			D
GRP45270	15	1706	1711	1707	S08	E49	.771	11958	19.4	5	--F				.45				2 2 2 3
HUAN	15	1706U	1711	1707	S07	E50	.779	11958	19.5	5D	-N	1	C	1707	.52	.82			E
RAMY	15	1706E	1709D	1706U	S08	E48	.760	11958	19.3	3D	-F	2	C		.37				DE
	15	1900	1902	NO FLARE PATROL															
271 RAMY	15	2048	2259D	2050U	S07	E49	.768	11958	19.5	131D	-N	2	V		1.64				DE 1
	15	2056	2211	NO FLARE PATROL															
	15	2333	2349	NO FLARE PATROL															
	15	2400	0001	NO FLARE PATROL															
272 CULG	16	0113	0128		S10	E43	.686	11958	19.3	15	1N			0116	2.20	3.10			1
GRP45274	16	0807	0818	0808	S09	E44	.718	11958	19.6	11	--F				.82				2 2 2 7
ABST	16	0804	0821	0806	S08	E44	.715	11958	19.6	17	-F		C	0806	1.35	1.90			E
CATA	16	0810	0815	0810	S09	E44	.718	11958	19.6	5	-N		C	0810	.29	.41		(190)	
GRP45275	16	1354	1409	1358	S12	W33	.597	11954	14.1	15	-N				.88				8 8 7 10
BOUL	16	1350	1412	1352	S11	W32	.579	11954	14.2	22	-B	3	V						
UPIC	16	1354	1408	1358	S13	W32	.591	11954	14.2	14	-N		C	1358	1.68				
RAMY	16	1355	1418	1358	S13	W32	.591	11954	14.2	15	-N	3	C		1.49				DE H
CATA	16	1355E	1410	1355	S12	W32	.585	11954	14.2	15D	-B		P	1355	1.16	1.41		(232)	
HUAN	16	1355	1407	1357	S12	W31	.572	11954	14.3	12	-N	1	C	1357	.46	.58			
MCMA	16	1356	1405	1358	S13	W32	.591	11954	14.2	9	-B		C	1358	.52	.60			EL
TEHR	16	1357E	1406	1400	S08	W40	.666	11954	13.6	9D	-N	4	V		.37				DE
CAPS	16	1400E	1415D		S13	W30	.566	11954	14.3	15D	-N	2	V	1405	.50	.60		(170)	C
GRP45276	17	0007	0025	0010	S12	E15	.379	11958	18.1	18	-B				1.19				3 2 2 4
CULG	17	0004	0038	0012	S12	E14	.290	11958	18.1	34	1B			0012	2.20	2.30			
PALE	17	0007E	0029	0010	S12	E15	.379	11958	18.1	22D	-N	3	C		.91				HDE
VORO	17	0007	0021	0010	S12	E14	.368	11958	18.1	14	-B		C	0010	1.47	1.58		76	E

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
	1972 JUL																		
GRP45278	17	0802	0844	0812	S24	W03	.479	11961	17.1	42	-N				.87				4 3 3 10
CATA	17	0800	0825D	0815	S24	W03	.479	11961	17.1	25D	-N		P	0815	.63	.73		(182)	
ABST	17	0804	0841	0809	S24	W04	.481	11961	17.0	37	1F		C	0809	1.80	2.10			EJZ
ZURI	17	0805	0827	0807	S23	W06	.364	11961	16.9	22	-N			0807	.90	1.00			
ARCE	17	0805E	0846D		S24	W03	.479	11961	17.1	41D	-N		C	0815	.17	.20			H
GRP45279	17	0911	0916	0913	N09	E09	.174	11956	18.1	5	--N				.70				8 8 7 13
ARCE	17	0905E	0915D		N08	E10	.183	11956	18.1	10D	-B		C	0911	.29	.30			H
ABST	17	0910	0917	0912	N09	E08	.159	11956	18.0	7	-N		C	0912	.99	1.00			DZ
CANR	17	0910	0916		N09	E09	.174	11956	18.1	6	-B	2	V	0911	.40	.40			
KHAR	17	0910E	0916D		N11	E08	.178	11956	18.0	6D	-F		V				1.80		DG
MONT	17	0911E	0914	0911	N09	E09	.174	11956	18.1	3D	-N		C	0911	.21				
UPIC	17	0911	0916	0913	N08	E09	.167	11956	18.1	5	1N		C	0913	2.10				
CAPS	17	0912E	0916D		N10	E10	.197	11956	18.1	4D	-N	2	V	0914	.40	.40		(170)	C
CATA	17	0915	0920	0915	N08	E09	.167	11956	18.1	5	-B		C	0915	.52	.53		(224)	
GRP45280	17	0937	0954	0941	S24	W04	.481	11961	17.1	17	-F				1.16				5 4 4 13
ARCE	17	0920E	1000D		S24	W04	.481	11961	17.1	40D	-F		C	0940	.23	.30			H
ZURI	17	0935E	0949	0935	S23	W05	.360	11961	17.0	14D	-N			0939	.80	.90			
CATA	17	0935	0950	0945	S24	W05	.483	11961	17.0	15	-N		C	0945	1.04	1.18		(164)	
ABST	17	0937	0958	0940	S24	W04	.481	11961	17.1	21	1F		C	0940	2.25	2.60			EJZ
MONT	17	0938	0946	0939	S25	W03	.495	11961	17.2	8	-N		C	0939	1.13				H
GRP45281	17	1119	1136	1124	S25	W04	.496	11961	17.2	17	--F				.65				4 4 4 12
UPIC	17	1115	1133	1124	S24	W03	.479	11961	17.2	18	-F		C	1124	.84				
RAMY	17	1120	1129D	1123	S25	W05	.498	11961	17.1	9D	-F	2	C		.46				DE
ABST	17	1120	1129D	1123	S25	W04	.496	11961	17.2	9D	-F		P	1123	.90	1.00			DZ
MCMA	17	1122	1138	1124	S25	W05	.498	11961	17.1	16	-F		C	1124	.41	.50			E
GRP45282	17	1212	1224	1214	N08	E08	.151	11956	18.1	12	--N				.54				9 9 9 13
UPIC	17	1210	1222	1214	N08	E07	.136	11956	18.0	12	-F		C	1214	1.26				F
RAMY	17	1210	1220	1213	N08	E08	.151	11956	18.1	10	-N	2	C		.37				DH
MCMA	17	1212	1220	1214	N08	E07	.136	11956	18.0	8	-B		C	1214	.31	.30			H
ARCE	17	1212	1230D	1214	N08	E07	.136	11956	18.0	18D	-B		C	1214	.52	.50			DZ
ABST	17	1212E	1213D	1213	N08	E07	.136	11956	18.0	1D	-F		P	1213	.90	1.00			DE H
TEHR	17	1213E	1223	1213U	N08	E10	.183	11956	18.3	10D	-N	3	V		.19				C
CAPS	17	1213E	1230D		N10	E10	.197	11956	18.3	17D	-B	1	V	1214	.50	.50		(290)	
CATA	17	1215	1220	1215	N08	E08	.151	11956	18.1	5	-B		C	1215	.52	.53		(226)	
ATHN	17	1215E	1216D	1215U	N07	E08	.145	11956	18.1	1D	-N	1	V		.33				DE
GRP45285	17	1458	1514	1502	N08	E07	.136	11956	18.1	16	--N				.78				5 5 5 11
RAMY	17	1456	1509	1500U	N09	E07	.144	11956	18.1	13	-N	3	V		1.29				DE
MCMA	17	1458	1514	1502	N07	E06	.113	11956	18.1	16	-B		C	1502	.62	.60			EH
UPIC	17	1459	1516	1502	N08	E06	.120	11956	18.1	17	-F		C	1502	1.05				
HUAN	17	1500	1513	1502	N08	E06	.120	11956	18.1	13	-N	1	C	1502	.36	.36			D
CAPS	17	1502E	1520D		N10	E09	.182	11956	18.3	18D	-B	2	V	1505	.60	.60		(210)	C
287 PALE	17	2033	2046	2038	N06	E03	.058	11956	18.1	13	--F	3	C		.27				F 3
288 PALE	17	2311	2327	2319	N08	E01	.063	11956	18.0	16	--N	3	C		.27				F 2
289 PALE	18	0227	0247	0232	S06	E20	.384	11958	19.6	20	--N	2	C		.45				F 3
GRP45296	18	1602	1617	1605	S13	E12	.362	11958	19.6	15	--N				.67				3 3 3 9
ATHN	18	1602	1615	1604	S12	E15	.380	11958	19.8	13	-F	3	C		.50				F H
RAMY	18	1602	1618	1606	S15	E10	.374	11958	19.4	16	-N	3	C		1.11				F H
MCMA	18	1608E	1610D		S13	E12	.362	11958	19.6	2D	-N		P	1608	.41	.40			E
	18	2400	0001	NO FLARE PATROL															
	19	0116	0125	NO FLARE PATROL															
298 PALE	19	0123E	0134	0125U	S09	E68	.934	11965	24.2	11D	--F	2	V		.46				F 2
GRP45299	19	0525	0550	0540	N18	W70	.937	11953	14.0	25	-N				.46				2 1 1 5
CATA	19	0525	0550	0540	N18	W70	.937	11953	14.0	25	-N		C	0540	.46			(195)	
ATHN	19	0527E	0543	0528	N19	W70	.937	11953	14.0	16D	-N	3	V		.33				DE
GRP45303	19	1223	1245	1229	S12	E63	.905	11965	24.2	22	-N				.76				7 7 6 9
UPIC	19	1219	1244	1230	S14	E65	.921	11965	24.4	25	2B		C	1230	2.10				
ATHN	19	1223	1242	1226	S12	E64	.912	11965	24.3	19	-N	3	C		.50				DE
RAMY	19	1225	1245	1229	S12	E62	.898	11965	24.2	20	-N	3	C		.74				DE
HTPR	19	1225	1250	1228	S13	E64	.913	11965	24.3	25	-F		C	1228	.31	.70			E
ONDR	19	1226E	1238D		S10	E64	.909	11965	24.3	12D	-N		V	1229			2.00		CDG
HUAN	19	1228E	1240		S11	E63	.904	11965	24.2	12D	-N	1	P	1228	.46	1.06			E
TEHR	19	1230E	1247	1233U	S10	E58	.863	11965	23.9	17D	-N	4	V		.46				F

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE 1972	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
	JUL																		
GRP45304	19	1742	1753	1748	N13	W12	.250	11956	18.8	11	--N				.32				3 3 2 4
PALE	19	1739	1801	1746U	N12	W12	.241	11956	18.8	22	-N	2	C		.36				F
HUAN	19	1741E	1744		N12	W12	.241	11956	18.8	3D	-F	1	P						
RAMY	19	1747	1755D	1749	N14	W11	.247	11956	18.9	8D	-N	2	C		.28				DE
	19	2328	2350	NO FLARE PATROL															
	20	2025	2039	NO FLARE PATROL															
307 MCMA	20	2039E	2042D		S12	W03	.293	11958	20.6	3D	--F		P	2039	.62	.60			E 1
	20	2042	2049	NO FLARE PATROL															
	20	2105	2113	NO FLARE PATROL															
	20	2115	2131	NO FLARE PATROL															
	20	2207	2350	NO FLARE PATROL															
	20	2400	0004	NO FLARE PATROL															
GRP45311	21	0451	0506	0454	N08	W43	.680	11956	18.0	15	--N				.39				2 2 2 4
ATHN	21	0448	0504	0451	N07	W44	.692	11956	17.9	16	-N	2	C		.50				F
TEHR	21	0453	0508	0456	N08	W41	.654	11956	18.1	15	-N	4	V		.28				DE
GRP45312	21	0700	0724	0705	N09	W44	.693	11956	18.0	24	-N				.85				4 4 4 7
CRON	21	0657E	0721		N09	W43	.680	11956	18.1	24D	-N	2	V		1.20				
ATHN	21	0658E	0722	0700	N07	W45	.705	11956	17.9	24D	-N	3	C		1.16				F
CAPS	21	0659	0729		N10	W44	.693	11956	18.0	30	-B	3	P	0706	.40	.60		(201)	
CATA	21	0705	0725	0710	N09	W44	.693	11956	18.0	20	-N		C	0710	.63	.89		(199)	
GRP45314	21	0923	0945	0928	N09	W45	.705	11956	18.0	22	-N				.94				9 9 8 9
KHAR	21	0921	0951D		N09	W47	.729	11956	17.9	30D	1N		V	0930	1.78	2.50	2.10		D
ATHN	21	0922	0946	0926	N08	W46	.717	11956	17.9	24	-N	3	C		.66				F
ABST	21	0923	0944D	0926	N08	W46	.717	11956	17.9	21D	1F		P	0926	1.53	2.20			F
UPIC	21	0923	0939	0928	N10	W45	.706	11956	18.0	16	-N		C	0928	1.47				
CAPS	21	0925	0945		N10	W45	.706	11956	18.0	20	-B	1	V	0930	.60	1.00		(216)	FU
CANR	21	0925	0953		N08	W43	.680	11956	18.2	28	-F	3	V		.70	1.00			
CATA	21	0925	0945	0930	N09	W45	.705	11956	18.0	20	-N		C	0930	.58	.82		(190)	
TEHR	21	0928E	0942	0929U	N07	W44	.692	11956	18.1	14D	-N	4	V		.31				F
ONDR	21	0933E	0939		N09	W47	.729	11956	17.9	6D	-F		V	0934			2.50		CD
GRP45315	21	1049	1113	1051	S10	W26	.498	11958	19.5	24	-N				1.10				7 6 6 10
ATHN	21	1049	1109	1051	S12	W25	.501	11958	19.6	20	-N	3	V		.83				F
RAMY	21	1049	1117	1052	S10	W27	.511	11958	19.4	28	-N	2	C		1.02				DE
CAPS	21	1049E	1108D		S10	W26	.498	11958	19.5	19D	-N	1	V	1054	1.20	1.40		(170)	DCU
TEHR	21	1058E	1103	1050U	S09	W26	.491	11958	19.5	13D	-N	4	V		.45				F
HTPR	21	1052E	1100D		S10	W28	.524	11958	19.4	8D	-F		C	1056	.83	.90			B
KHAR	21	1054E	1127D		S08	W26	.484	11958	19.5	33D	1N		V	1059	2.27	2.80	1.80		E
ONDR	21	1102E	1110D		S09	W30	.544	11958	19.2	8D	-F		V	1105			2.00		C
GRP45316	21	1110	1135	1116	N08	W48	.741	11956	17.9	25	-N				.86				6 6 5 9
ONDR	21	1108E	1137		N09	W49	.752	11956	17.8	29D	1N		V	1116			2.70		CD
RAMY	21	1108	1130	1116	N09	W46	.717	11956	18.0	22	-N	3	C		1.45				DE
CATA	21	1110	1125D	1110	N07	W49	.752	11956	17.8	15D	-N		P	1110	.52	.79		(178)	
KHAR	21	1110E	1154D		N09	W47	.729	11956	17.9	44D	1N		V	1121	1.78	2.50	2.10		DH
ATHN	21	1114	1130	1117	N08	W48	.741	11956	17.9	16	-F	3	V		.33				DE
TEHR	21	1119E	1126	1120U	N08	W46	.717	11956	18.0	7D	-N	3	V		.28				DE H
GRP45317	21	1326	1347	1330	N09	W48	.741	11956	18.0	21	-N				.73				7 5 5 11
ARCE	21	1259E	1407		N07	W47	.729	11956	18.0	68D	-F		C	1259	.13	.20			
HUAN	21	1322	1342	1327U	N09	W49	.752	11956	17.9	20	-N	1	C	1327	.46	.70			E
ZURI	21	1323	1339	1325	N08	W47	.742	11956	18.0	16	-F			1329	.90	1.40			
MCMA	21	1323	1338		N08	W50	.763	11956	17.8	15	-N		C	1327	.52	.80			E
CATA	21	1325	1330D	1325	N11	W48	.742	11956	18.0	5D	-B		P	1325	1.09	1.65		(224)	
UPIC	21	1327	1345	1329	N11	W49	.753	11956	17.9	18	1B		C	1329	1.90				
BOUL	21	1329	1346	1331	N08	W48	.741	11956	18.0	17	-N	2	V	1331	.48	.50			
CANR	21	1330	1341	1334	N09	W46	.717	11956	18.1	11	-N	2	V	1334	.60	.80			
GRP45318	21	1601	1617	1605	S10	W38	.550	11958	19.4	16	--F				.68				3 3 2 6
RAMY	21	1558	1613D	1604	S10	W30	.550	11958	19.4	15D	-F	3	C		.84				DE
MCMA	21	1602	1625	1606	S10	W30	.550	11958	19.4	23	-N		C	1606	.52	.60			E
HUAN	21	1602	1613	1605	S09	W30	.544	11958	19.4	11	-F	1	C						
GRP45320	21	1809	1822	1811	N12	W41	.658	11956	18.7	13	--F				.26				3 3 2 5
BOUL	21	1808	1827	1810	N11	W38	.617	11956	18.9	19	-F	3	V						
MCMA	21	1810	1813D	1811	N13	W44	.697	11956	18.5	3D	-F		C	1811	.26	.40			E
HUAN	21	1811E	1816		N13	W42	.672	11956	18.6	5D	-F	1	P	1812	.26	.35			

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION — MIN.	IM-POR-TANCE	OBS. COND.	OBS. TYPE	MEASUREMENTS					REMARKS
					APPROX.														
	DATE 1972	START	END	MAX. PHASE	LAT.	MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY					TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
	JUL																		
GRP45321	21	1848	1901	1855	S09	E31	.557	11965	24.1	13	--N				.50				3 3 3 4
CANR	21	1846	1853	1851	S09	E31	.557	11965	24.1	7	-N	2	V	1851	.80	1.00			
PALE	21	1850	1906	1859	S09	E30	.544	11965	24.0	16	-N	3	C		.45				F
HUAN	21	1902E	1903		S09	E31	.557	11965	24.1	1D	-F	1	P	1902	.26	.31			D
	21	2020	2039	NO FLARE PATROL															
GRP45322	21	2053	2129	2056	N08	W50	.763	11956	18.1	36	--B				.60				3 2 2 3
HUAN	21	2053	2129	2057U	N08	W51	.774	11956	18.0	36	-B	1	C	2057	.57	.89			E
PALE	21	2055E	2056D	2055U	N08	W49	.752	11956	18.2	1D	-N	2	C		.63				F
MCMA	21	2111E	2112D		N08	W52	.785	11956	18.0	1D	-N		P	2112	.52	.80			E
	21	2107	2111	NO FLARE PATROL															
	21	2200	2249	NO FLARE PATROL															
	21	2253	2256	NO FLARE PATROL															
	21	2350	0000	NO FLARE PATROL															
323 PALE	22	0200E	0202D	0200U	N07	W53	.796	11956	18.1	2D	--F	3	V		.36				2
8 STATIONS REPORTING GROUP 45326. 0 STATIONS OBSERVING AND NOT REPORTING.																			
GRP45326	22	0552	0626	0555	S09	W50	.785	11958	18.5	34	-N				1.18				6 6 6 6
ATHN	22	0549	0606	0553	S08	W51	.793	11958	18.4	17	-N	2	C		.66				F
TEHR	22	0549E	0622	0556	S09	W48	.764	11958	18.6	33D	-B	3	V		.56				F H
MANI	22	0549	0625	0556	S09	W50	.785	11958	18.5	36	-N	2		0556	.93	1.48			
ABST	22	0553E	0645	0555	S08	W51	.793	11958	18.4	52D	2N		P	0555	3.16	5.20		82	EJZ
CATA	22	0555	0605D	0555	S08	W50	.783	11958	18.5	10D	-B		P	0555	1.16	1.80		(272)	Z
HTPR	22	0555E	0633D		S11	W50	.791	11958	18.5	38D	-N		C	0556	.62	1.00			
45326	22	0614E	0647D	(0616)	S08	W50	.783	11958	18.5	33	*-F				.85				2 2 2 8
BUCA	22	0614E	0628D		S08	W50	.783	11958	18.5	14D	-F		P	0614	1.10	1.80			
CAPS	22	0617E	0647D		S07	W50	.781	11958	18.5	30D	-N	1	S	0617	.60	1.00		(165)	C
GRP45327	22	0745E	0803	0750	S09	W38	.648	11958	19.5	18	--N				.95				3 3 3 10
ABST	22	0745E	0757D	0749	S10	W39	.664	11958	19.4	12D	1F		P	0749	1.89	2.50		72	E
TEHR	22	0748E	0758	0751	S10	W36	.627	11958	19.6	10D	-N	3	V		.37				F
CAPS	22	0748E	0807D		S08	W38	.644	11958	19.5	19D	-N	1	V	0748	.60	.60		(168)	CF
GRP45329	22	1026	1103	1034	S08	W52	.803	11958	18.5	37	-N				1.31				6 5 5 8
ATHN	22	1024	1052	1028	S08	W56	.842	11958	18.2	28	-N	2	C		1.32				F
CATA	22	1025	1045D	1030	S07	W53	.811	11958	18.5	20D	1B		P	1030	1.62	2.70		(219)	Z
LOCA	22	1025	1055D	1032	S09	W50	.785	11958	18.7	30D	-N		V	1032	1.26	2.00			
CAPS	22	1027E	1115D		S07	W50	.781	11958	18.7	48D	1B	1	V	1031	1.50	2.20		(256)	C
HTPR	22	1027	1110	1031	S09	W52	.806	11958	18.5	43	-F		C	1031	.83	1.40			
RAMY	22	1045	1104D	1050	S10	W53	.818	11958	18.5	19D	1N	2	C		2.60				DE
GRP45331	22	1130	1142	1131	S10	W41	.688	11958	19.4	12	-N				.85				6 6 6 7
ATHN	22	1128	1140	1130	S11	W42	.704	11958	19.3	12	-F	2	C		.50				DE
RAMY	22	1129	1130D	1130U	S10	W41	.688	11958	19.4	1D	-N	2	C		1.11				DE
CATA	22	1130E	1135D	1130	S10	W41	.688	11958	19.4	5D	-N		P	1130	.87	1.19		(190)	
CANR	22	1130	1143	1133	S09	W40	.672	11958	19.5	13	-N	2	V		1.50	2.00			
CAPS	22	1130E	1142D		S08	W38	.644	11958	19.6	12D	-B	1	V	1132	.80	.80		(196)	
HTPR	22	1132	1143	1134	S12	W42	.708	11958	19.3	11	-F		C	1134	.31	.40			E
GRP45332	22	1459	1601	1510	S10	E19	.409	11965	24.0	62	--N				.78				4 4 3 7
HTPR	22	1458	1610	1511	S10	E17	.384	11965	23.9	72	-F		C	1511	.62	.70			HU
MCMA	22	1459	1555	1508	S10	E18	.396	11965	24.0	56	-N		C	1508	.52	.60			EL
HUAN	22	1500	1520		S11	E14	.361	11965	23.7	20	-N	1	C						
RAMY	22	1505E	1558D	1512	S10	E26	.499	11965	24.6	53D	-N	3	C		1.21				DE
333 HUAN	22	2041	2052	2041	S05	E85	.997	11968	29.2	11	-N	1	C	2041	.26				D 4
GRP45334	22	2148	2156	2150	S11	W47	.760	11958	19.4	8	--F								2 2 0 3
BOUL	22	2148	2155	2150	S12	W48	.773	11958	19.3	7	-F	3	V						
HUAN	22	2148	2156		S09	W46	.742	11958	19.5	8	-N	1	P						E
	22	2353	0014	NO FLARE PATROL															
GRP45335	23	0343	0405	0345	S08	E09	.273	11965	23.8	22	-F				.41				2 1 1 5
CULG	23	0330	0445	0341	S09	E12	.241	11965	24.0	15	1F			0341	4.20	4.20			
MANI	23	0343E	0405	0345	S08	E09	.273	11965	23.8	22D	-F	2		0345	.41	.43			
GRP45336	23	0554	0601	0556	N08	W70	.937	11956	18.0	7	--F				.27				2 2 2 4
ATHN	23	0552	0600	0554	N08	W69	.931	11956	18.1	8	-F	3	C		.33				DE
HTPR	23	0556	0602	0557	N08	W70	.937	11956	18.0	6	-F		C	0557	.21				D
342 HUAN	23	1518	1526	1521U	S16	E88	1.000	11970	30.2	8	-F	1	C	1521	.15				DT 8

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
	1972 JUL																		
GRP45345	23	2004	2028	(2011)	S17	E86	.999	11970	30.3	16	--F				.21				2 2 1 3
RAMY	23	2004	2021		S18	E85	.998	11970	30.2	17	-F	2	C						DE
HUAN	23	2011E	2019		S16	E87	1.000	11970	30.4	8D	-N	1	P	2011	.21				D
346 HUAN	23	2023	2035D		S16	E87	1.000	11970	30.4	12D	--F	1	C	2034	.15				D 3
GRP45347	23	2034	2042	2035	S11	W60	.882	11958	19.4	8	--F				.29				2 2 2 3
HUAN	23	2033	2035D		S12	W59	.875	11958	19.4	2D	-F	1	P	2034	.31	.63			
MCMA	23	2034	2042	2035	S10	W60	.880	11958	19.4	8	-N		C	2035	.26	.50			E
349 HUAN	23	2147	2208	2154	S16	E87	1.000	11970	30.4	21	-N	1	C	2154	.26				D 4
	23	2400	0001	NO FLARE PATROL															
GRP45350	24	0530	0550	0534	S10	W66	.924	11958	19.3	20	--F				.71				2 2 2 6
CATA	24	0530	0550	0535	S08	W65	.915	11958	19.4	20	-N		C	0535	.52	1.23		(184)	
ABST	24	0532E	0537D	0533	S11	W67	.931	11958	19.2	5D	-F		P	0533	.90			71	D
355 PALE	24	2010	2020	2012	N07	E20	.342	11972	26.3	10	--F	3	C		.19				F 1
	24	2359	0010	NO FLARE PATROL															
	25	0155	0245	NO FLARE PATROL															
	25	0256	0320	NO FLARE PATROL															
356 PALE	25	0340E	0347D	0340U	S16	E67	.937	11970	30.2	7D	-N	2	C		.81				F 1
	25	0359	0400	NO FLARE PATROL															
GRP45358	25	0603	0609	0605	S17	E68	.944	11970	30.4	6	--F				.24				2 2 2 5
ATHN	25	0600	0608	0604	S17	E69	.949	11970	30.4	8	-F	3	C		.33				DE
CATA	25	0605	0610	0605	S17	E66	.933	11970	30.2	5	-N		C	0605	.14			(166)	
	26	0116	0205	NO FLARE PATROL															
	26	0222	0229	NO FLARE PATROL															
	26	0230	0308	NO FLARE PATROL															
	26	0319	0357	NO FLARE PATROL															
370 TEHR	26	0323E	0330	0325U	S10	W25	.488	11965	24.3	7D	--N	3	V		.46				DE H 1
371 TEHR	26	0332	0344	0336	S10	W25	.488	11965	24.3	12	--N	3	V		.65				F 1
372 TEHR	26	0511	0519	0513	S14	E45	.751	11970	29.6	8	--N	3	V		.19				DE 2
GRP45375	26	0915	0937	0919	S05	E31	.539	11968	28.7	22	--N				.78				8 8 8 10
KHAR	26	0910E	0946D		S07	E34	.589	11968	28.9	36D	1F		P	0920	1.70	2.10	1.50		E
CATA	26	0910	0935	0915	S06	E31	.544	11968	28.7	25	-N		C	0915	.52	.61		(184)	
ARCE	26	0914E	0941D		S04	E33	.563	11968	28.9	27D	-N		C	0927	.39	.50			
HTPR	26	0914	0948	0920	S05	E30	.525	11968	28.6	26	-F		C	0920	.31	.30			
MONT	26	0915	0932	0921	S05	E32	.553	11968	28.8	17	-N		C	0921	1.13				H
ATHN	26	0915	0935	0917	S04	E32	.549	11968	28.8	20	-N	2	C		.50				DE
TEHR	26	0917E	0938	0917U	S05	E28	.497	11968	28.5	13D	-N	4	V		.84				F
CAPF	26	0921	0935D	0925	S04	E31	.535	11968	28.7	14D	-N		P	0925	.86	1.00			F
GRP45376	26	1009	1025	1012	N08	E09	.162	11968	27.1	16	--F				.53				4 4 3 8
MONT	26	1009	1033	1012	N08	E09	.162	11968	27.1	24	-N		C	1012	.72				
KHAR	26	1011E	1023D		N08	E09	.162	11968	27.1	12D	-F		P				1.20		D
ATHN	26	1012E	1019	1012U	N07	E09	.158	11968	27.1	7D	-F	3	V		.50				DE
ATHN	26	1012E	1019	1012U	N07	E09	.158	11968	27.1	7D	-F	3	V		.50				DE
TEHR	26	1013E	1015D	1013U	N08	E07	.138	11968	27.0	2D	-N	1	V		.37				F
GRP45377	26	1029	1043	1032	S15	E45	.755	11970	29.8	14	--F				.27				2 2 2 6
HTPR	26	1029	1045	1032	S14	E45	.751	11970	29.8	16	-F		C	1032	.21	.30			D
ATHN	26	1029E	1040	1031	S15	E45	.755	11970	29.8	11D	-N	3	V		.33				DE
ATHN	26	1029E	1040	1031	S15	E45	.755	11970	29.8	11D	-N	3	V		.33				DE
GRP45380	26	1426	1453	1429	S09	W36	.624	11965	23.9	27	-N				1.14				5 5 5 10
RAMY	26	1425	1503	1428	S10	W34	.604	11965	24.1	38	-F	3	C		1.58				DE
RAMY	26	1425	1503	1445	S10	W34	.604	11965	24.1	38	-F	3	C		.65				DE
MCMA	26	1427	1448		S08	W38	.645	11965	23.8	13	-N		P	1431	.93	1.20			E
CANR	26	1427	1444	1428	S07	W38	.641	11965	23.8	17	-N	2	V	1428	.80				
CATA	26	1430E	1505D	1430	S10	W35	.617	11965	24.0	35D	1B		P	1430	2.08	2.61		(162)	
CAPS	26	1432E	1452D		S11	W35	.622	11965	24.0	20D	-N	1	S	1435	.30	.40		(166)	
381 PALE	27	0134	0145	0137	S09	W59	.871	11971	22.6	11	--F	2	C		.36				F 2

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OBSERVATORY	OBSERVED UT				LOCATION						DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY		MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
	1972 JUL																			
GRP45382	27	0522	0547	0527	S14	E39	.686	11970	30.1		25	-N				.94				4 3 3 7
CULG	27	0519	0549	0524	S13	E41	.672	11970	30.3		30	1N			0524	1.50	2.10			
ATHN	27	0520	0545	0524	S13	E41	.703	11970	30.3		25	-N	2	C		.99				F
CRON	27	0522	0540		S14	E42	.719	11970	30.4		18	-N	3	V		.40				
CATA	27	0525	0555	0530	S15	E35	.646	11970	29.9		30	-N		C	0530	1.44	2. [illegible]		(190)	
GRP45384	27	0633	0642	0634	S10	W64	.910	11971	22.5		9	-F				.92				2 2 2 6
ABST	27	0632E	0644	0633	S09	W65	.916	11971	22.4		12D	1N		P	0633	1.62				E
HTPR	27	0633	0640	0634	S10	W63	.903	11971	22.5		7	-F		C	0634	.21	.40			D
GRP45385	27	0634	0700	0638	S05	E19	.369	11968	28.7		26	-N				1.72				7 7 7 9
HTPR	27	0631	0655	0636	S05	E18	.354	11968	28.6		24	-N		C	0636	.93	1.00			U
ABST	27	0633	0708	0636	S05	E19	.369	11968	28.7		35	1N		C	0636	3.60	3.90			EUZ
ATHN	27	0634E	0658	0634U	S05	E19	.369	11968	28.7		24D	-N	2	C		1.32				U F
CATA	27	0635	0645D	0635	S06	E18	.363	11968	28.6		10D	1B		P	0635	2.32	2.48		(219)	
CRON	27	0635E	0652	0643	S06	E20	.390	11968	28.8		17D	-N	3	V	0643	.80				
MONT	27	0642E	0701	0642	S05	E19	.369	11968	28.7		19D	-N		C	0642	2.27				
CAPS	27	0646E	0706D		S04	E18	.347	11968	28.6		20D	-B	1	S	0648	.80	.90		(216)	U
GRP45398	27	1927	1947	1929	S16	E36	.663	11970	30.5		20	--F				.36				2 2 1 4
HUAN	27	1927	1943	1929U	S16	E37	.674	11970	30.6		16	-F	1	C	1929	.36	.48			
BOUL	27	1929E	1950	1929U	S15	E35	.646	11970	30.4		21D	-F	3	V						
GRP45399	27	2229	2245	2232	S06	E11	.273	11968	28.8		16	--F				.50				2 2 2 2
HUAN	27	2228	2230D		S06	E11	.273	11968	28.8		2D	-F	1	P	2230	.15	.16			D
VORO	27	2230	2245	2232	S06	E11	.273	11968	28.8		15	-N		C	2232	.84	.84		61	D
GRP45401	28	0121	0141	0128	S06	E09	.251	11968	28.7		20	-B				2.43				3 2 2 4
CULG	28	0121	0154	0124	S04	E08	.147	11968	28.7		33	1B			0124	2.10	2.10			
MITK	28	0121	0144	0124	S05	E09	.238	11968	28.7		23	1B		C	0124	4.23	4.50			
PALE	28	0130E	0137	0131U	S06	E08	.241	11968	28.7		7D	-N	2	C		.63				DE
7 STATIONS REPORTING GROUP 45402. 0 STATIONS OBSERVING AND NOT REPORTING.																				
GRP45402	28	0615	0645	0620	S14	E24	.511	11970	30.1		30	--N				.94				5 5 5 5
CATA	28	0615	0650	0620	S13	E24	.502	11970	30.1		35	-B		C	0620	1.04	1.20		(234)	
TEHR	28	0618E	0640	0621	S12	E25	.506	11970	30.1		22D	-N	4	V		1.00				Z F
ATHN	28	0619E	0628D	0619U	S15	E25	.532	11970	30.1		9D	-N	2	V		1.16				U F
HTPR	28	0621E	0645		S15	E25	.532	11970	30.1		24D	-F		C	0622	.41	.50			
BUCA	28	0622E	0638D		S13	E23	.491	11970	30.0		16D	-F		P	0622	1.10	1.30			B
45402	28	0630	0709	0637	S13	E25	.514	11970	30.1		39	*-B				.68				2 2 2 7
MITK	28	0630	0655D	0632	S12	E25	.506	11970	30.1		25D	-B		C	0632	.83	.90			D
MONT	28	0637E	0709	0642	S13	E25	.514	11970	30.2		32D	-N		C	0642	.52				
GRP45406	28	0850	0918	0855	N09	W30	.499	11972	26.1		28	--N				.29				7 7 5 11
MONT	28	0849	0914	0852	N09	W29	.484	11972	26.2		25	-F		C	0852	.21				
ARCE	28	0849E	0923D		N10	W30	.501	11972	26.1		34D	-N		C	0900	.42	.50			
CATA	28	0850	0925	0900	N11	W29	.488	11972	26.2		35	-N		C	0900	.34	.40		(198)	
HTPR	28	0851	0920	0851	N10	W30	.501	11972	26.1		29	-N		C	0851	.10	.10			D
TEHR	28	0852	0909	0858	N09	W28	.469	11972	26.3		17	-F	3	V		.37				F
KHAR	28	0857E	0916D		N08	W32	.528	11972	26.0		19D	-F		P				1.50		D
CAPS	28	0858E	0919D		N09	W29	.484	11972	26.2		21D	-N	2	S						C
GRP45409	28	1232	1250	1240	S19	E49	.810	11974	1.2		18	--N				.21				3 3 3 8
HTPR	28	1232	1255	1241	S20	E50	.823	11974	1.3		23	-F		C	1241	.10	.20			D
MCMA	28	1232	1248	1239	S20	E50	.823	11974	1.3		16	-N		C	1239	.26	.50			D
TEHR	28	1239E	1247	1240U	S17	E48	.793	11974	1.1		8D	-N	3	V		.28				F
GRP45410	28	1320	1343	1327	S20	E49	.814	11974	1.2		23	-N				.86				10 9 9 11
BUCA	28	1319E	1338D		S19	E48	.801	11974	1.2		19D	-F		C	1328	1.10	2.00			
BOUL	28	1319	1336	1326	S25	E46	.810	11974	1.0		17	-F	2	C	1326	.86	1.47			
CATA	28	1320	1345	1325	S20	E48	.805	11974	1.2		25	-B		C	1325	.87	1.48		(269)	
TEHR	28	1320	1340	1327	S18	E47	.788	11974	1.1		20	-B	3	V		.36				F H
KIEV	28	1320	1330	1324	S19	E50	.819	11974	1.3		10	-N		C	1324	1.83			70	D
HTPR	28	1321	1350	1325	S20	E50	.823	11974	1.3		29	-N		C	1325	.52	.90			H
HUAN	28	1321	1342U	1326U	S20	E50	.823	11974	1.3		21D	1F	1	C	1326	1.19	2.03			
MCMA	28	1321	1357	1327	S20	E50	.823	11974	1.3		36	-B		C	1327	.62	1.10			EL
CAPS	28	1323E	1350D		S18	E48	.797	11974	1.2		27D	-B	2	P	1325	1.20	2.00		(300)	CH
ATHN	28	1334E	1338D	1334U	S22	E50	.830	11974	1.3		4D	-N	2	V		.66				DE
GRP45411	28	1352	1409	1354	S04	E02	.168	11968	28.7		17	--N				.82				7 7 6 10
CATA	28	1350	1400	1350	S04	E01	.165	11968	28.7		10	-B		P	1350	.80	.82		(224)	
BOUL	28	1350	1408	1353	S05	E00	.182	11968	28.6		18	-F	2	C	1353	.75	.75			
HUAN	28	1352	1404	1354U	S05	E01	.182	11968	28.7		12	-F	1	C						
MCMA	28	1352	1409	1354	S05	E02	.185	11968	28.7		17	-N		C	1354	.62	.60			E
HTPR	28	1353	1410	1354	S05	E02	.185	11968	28.7		17	-N		C	1354	.41	.40			G
CAPS	28	1354E	1408D		S02	E04	.147	11968	28.9		14D	-N	2	V	1357	.70	.70		(198)	C
BUCA	28	1354	1425D		S04	E01	.165	11968	28.7		31D	-N		C	1354	1.66	1.70			

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	NOAATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
	1972 JUL																		
GRP45416	28	2046	2116	2048	S05	W02	.185	11968	28.7	30	--F				.51				3 3 2 4
BOUL	28	2045	2135	2047	S05	W02	.185	11968	28.7	50	-F	3	V						
RAMY	28	2047	2108	2047	S05	W03	.189	11968	28.6	21	-F	2	C		.65				DE
PALE	28	2048E	2105	2050	S05	W02	.185	11968	28.7	17D	-N	3	C		.36				F
GRP45417	28	2141	2202	2146	S14	E18	.445	11970	30.3	21	--N				.76				4 4 4 5
BOUL	28	2139	2204	2148	S12	E22	.469	11970	30.6	25	-N	3	V	2148	1.00	1.20			
HUAN	28	2140	2152	2144	S13	E17	.423	11970	30.2	12	-N	2	C	2144	.67	.74			E
PALE	28	2142E	2210	2147	S14	E17	.435	11970	30.2	26D	-B	3	C		.72				F
RAMY	28	2142	2145D	2143	S16	E15	.440	11970	30.0	3D	-N	1	C		.65				DE
GRP45427	29	0922	0928	0925	N09	W46	.716	11972	25.9	6	--F				.47				2 2 2 7
MONT	29	0921	0927	0925	N08	W45	.704	11972	26.0	6	-N		C	0925	.72				
HTPR	29	0922	0928	0925	N09	W46	.716	11972	25.9	6	-F		C	0925	.21	.30			D
GRP45430	29	0938	0958	0944	S19	E36	.684	11974	1.1	20	--N				.55				4 4 4 10
HTPR	29	0935	1000	0948	S20	E35	.680	11974	1.0	25	-F		C	0948	.41	.60			
MONT	29	0935	0940	0938	S18	E39	.708	11974	1.3	5	-N		C	0938	.21				H
ARCE	29	0937E	1000D		S18	E37	.688	11974	1.2	23D	-N		C	0941	.29	.40			
CATA	29	0945	1010	0945	S18	E34	.656	11974	1.0	25	-N		C	0945	1.27	1.69		(182)	
GRP45432	29	1252	1307	1255	N09	W46	.716	11972	26.1	15	-N				1.42				8 8 7 9
BOUL	29	1251	1306	1253	N10	W45	.704	11972	26.2	15	1N	3	V	1253	2.40	3.40			
ATHN	29	1251	1306	1255	N10	W48	.740	11972	25.9	15	-N	3	C		1.65				F
MCMA	29	1252	1309	1255	N08	W47	.728	11972	26.0	17	-N		C	1255	1.03	1.50			E
HUAN	29	1252	1305	1254U	N09	W47	.728	11972	26.0	13	-N	1	C						
KIEV	29	1252	1300	1254	N10	W50	.763	11972	25.8	8	1N		C	1254	2.58			60	EI
HTPR	29	1253	1310	1254	N08	W47	.728	11972	26.0	17	-N		C	1254	.52	.80			
CAPS	29	1254E	1315D		N09	W40	.640	11972	26.5	21D	-B	2	V	1256	1.20	1.60		(205)	
CATA	29	1300E	1305D	1300	N09	W47	.728	11972	26.0	5D	-N		P	1300	.58	.85		(182)	
GRP45434	29	1547	1600	1551	S20	E34	.670	11974	1.2	13	--F				.51				2 2 2 3
MCMA	29	1546	1602	1551	S19	E33	.652	11974	1.1	16	-N		C	1551	.52	.70			E
ATHN	29	1547	1558	1551	S20	E35	.680	11974	1.3	11	-F	1	C		.50				DE
GRP45435	29	1812	1829	1814	N12	E80	.982	11976	4.8	17	--F				.30				3 2 1 4
BOUL	29	1811	1833	1814	N12	E83	.990	11976	5.0	22	-F	3	V						
CANR	29	1812	1824	1814	N11	E77	.971	11976	4.5	12	-N	3	V		.30	1.00			
PALE	29	1815E	1844	1831U	N12	E79	.979	11976	4.7	29D	-N	2	C		.36				
GRP45436	29	1839	1855	1845	S19	E34	.663	11974	1.3	16	--B				.56				4 4 4 4
BOUL	29	1838	1855	1846	S20	E37	.700	11974	1.6	17	-B	3	V	1846	.80	1.00			
BOUL	29	1838	1855	1842	S20	E37	.700	11974	1.6	17	-B	3	V						
CANR	29	1839	1852	1845	S19	E34	.663	11974	1.3	13	-N	2	V		.50	.60			
MCMA	29	1840	1854	1845	S19	E33	.652	11974	1.3	14	-N		C	1845	.52	.70			EH
PALE	29	1840	1858	1845	S18	E31	.624	11974	1.1	18	-B	2	V		.41				DE H
PALE	29	1840	1858	1841	S18	E31	.624	11974	1.1	18	-N	2	V		.72				DE H
437 PALE	30	0044	0103	0046	N09	W22	.376	11968	28.4	19	--N	3	C		.45				F 3
GRP45439	30	0715	0723	0717	S20	E26	.591	11974	1.3	8	--F				.30				3 3 3 9
TEHR	30	0714	0719	0716	S19	E27	.591	11974	1.3	5	-N	3	V		.19				DE
HTPR	30	0716	0725	0717	S21	E27	.610	11974	1.3	9	-F		C	0717	.21	.30			D
CRON	30	0718E	0725	0718U	S20	E25	.581	11974	1.2	7D	-F	3	V	0718	.50				
GRP45442	30	1134	1152	1140	S19	E23	.551	11974	1.2	18	--F				.44				2 2 2 6
MCMA	30	1133	1158	1140	S19	E23	.551	11974	1.2	17	-N		C	1140	.31	.38			E
RAMY	30	1134	1153	1139	S19	E23	.551	11974	1.2	19	-F	2	C		.56				DE
GRP45445	30	1608	1635	1613	S15	W05	.362	11970	30.3	27	--F				.37				2 2 2 5
MCMA	30	1608	1635	1613	S15	W04	.358	11970	30.4	27	-F		C	1613	.41	.40			E
ATHN	30	1613E	1614D	1613U	S15	W05	.362	11970	30.3	1D	-N	2	V		.33				DE
449 PALE	30	2342	2358	2345	S03	E52	.795	11979	3.9	16	-B	3	C		.72				F 2
450 PALE	31	0003E	0012	0005	S07	E50	.782	11979	3.8	9D	--N	3	V		.52				2
451 PALE	31	0005	0012	0007	N11	E67	.916	11976	5.0	7	--N	3	V		.31				F 2
GRP45450	31	1039	1049	1042	S17	E12	.432	11974	1.3	10	--N				.26				3 3 3 8
MONT	31	1035	1048	1037	S20	E11	.468	11974	1.3	5	-N		C	1037	.21				
CANR	31	1036	1052	1041	S12	E13	.373	11974	1.4	16	-N	3	V	1041	.30	.38			
TEHR	31	1047	1056	1048	S19	E12	.460	11974	1.3	9	-N	4	V		.28				F

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OBSERVATORY	OBSERVED UT DATE 1972 JUL	START	END	MAX. PHASE	LOCATION APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	DURATION MIN.	IMPORTANCE	OBS. COND.	OBS. TYPE	MEASUREMENTS TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Mα	MAX. INT. %	REMARKS
GRP45459	31	1059	1159	1115	S14	W16	.427	11970	30.3	60	1B				2.63				8 7 7 11
ZURI	31	1059	1152	1115	S12	W16	.333	11970	30.3	53	1B			1115	3.70	4.10			
RAMY	31	1059	1138D	1117	S13	W20	.458	11970	30.0	31D	1B	2	C		2.78				F
ATHN	31	1100E	1140	1112	S18	W15	.468	11970	30.3	40D	1B	3	V		2.15				Z U
CANR	31	1100E	1115D	1115	S14	W15	.418	11970	30.3	15D	-N	2	V		2.00	2.00			
CAPS	31	1101E	1155D		S11	W15	.381	11970	30.3	54D	1B	2	P	1115	2.58	2.70		(325)	C
MCMA	31	1105E	1200	1116	S15	W16	.439	11970	30.3	55D	-B		C	1116	1.03	1.10			E
KHAR	31	1108E	1220D		S13	W16	.415	11970	30.3	72D	1N		P	1122	3.40	3.70	1.80		
MONT	31	1109E	1130D	1116	S13	W15	.405	11970	30.3	21D	1N		C	1116	4.54				
45459	31	1100	1143	1104	S14	W17	.437	11970	30.2	43	*-B				1.41				4 4 4 10
RAMY	31	1059	1130D	1104	S13	W20	.458	11970	30.0	31D	-B	2	C		1.38				F
TEHR	31	1059E	1146	1104	S13	W16	.415	11970	30.3	47D	-N	4	V		.84				Z U
ATHN	31	1100E	1140	1102	S18	W15	.468	11970	30.3	40D	-B	3	V		1.65				Z U
CATA	31	1100	1110D	1105	S13	W17	.426	11970	30.2	10D	-B		P	1105	1.86	2.05		(229)	Z

In the importance column "--" signifies the subflare has been confirmed by the NOAA grouping program but is not included in the I.A.U. Quarterly Bulletin on Solar Activity. These subflares are also not included in the Flare Index below.

DAILY FLARE INDICES

Date	Flare Index	HR OBS	Date	Flare Index	HR OBS	Date	Flare Index	HR OBS
720701	91.48	22.5	720711	53.04	23.3	720722	25.34	23.6
720702	12.26	23.9	720712	8.25	23.4	720723	1.36	24.0
720703	10.19	21.6	720714	17.82	24.0	720724	0.00	23.8
720704	16.46	22.5	720715	27.29	22.4	720725	3.01	22.8
720705	7.33	23.7	720716	29.63	24.0	720726	7.88	21.8
720706	39.84	24.0	720717	18.57	24.0	720727	24.74	24.0
720707	69.07	23.6	720718	0.00	24.0	720728	35.07	24.0
720708	24.51	21.7	720719	4.17	23.5	720729	10.64	24.0
720709	93.85	23.1	720720	0.00	21.5	720730	2.74	24.0
720710	28.41	23.1	720721	21.96	22.6	720731	36.51	24.0

When no Flare Index is given, it is 0 for that day.

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION — MIN.	IMPORTANCE	OBS. COND.	OBS. TYPE	MEASUREMENTS					REMARKS
	DATE 1972 JUL	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY					TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
060 ATHN	01	0817	0838	0819	N09	W62	.882	11933	26.7	21	-F	3	C		.33				DE 4
061 CAPS	01	1111E	1122D		N08	W01	.091	11939	1.4	11D	-N	2	V	1115	.40	.40		(182)	C 6
GRP45062	01	1347	1416	1401	N16	E60	.870	11945	6.1	29	-F				.29				2 2 2 8
HTPR	01	1347	1420	1400	N16	E56	.835	11945	5.8	33	-F		C	1400	.21	.40			E
RAMY	01	1359E	1411	1401	N15	E63	.893	11945	6.3	12D	-F	2	C		.37				DE
GRP45063	01	1426	1505	1428	N08	W71	.944	11933	26.3	39	-F				.21				2 2 1 8
RAMY	01	1426	1433D	1428	N07	W73	.955	11933	26.1	7D	-N	2	C						DE
HTPR	01	1426	1505	1427	N08	W68	.926	11933	26.5	39	-F		C	1427	.21				
065 HTPR	01	1706	1717	1710	N05	E85	.996	11947	8.1	11	-F		C	1710	.21				A 5
066 HTPR	01	1706	1722	1710	N15	E52	.795	11945	5.6	16	-F		C	1710	.10	.20			D 5
071 ATHN	02	0651	0702D	0654	N07	W12	.218	11939	1.4	11D	-F	3	C		.50				F 7
074 TEHR	02	1126	1144	1130	N05	W17	.294	11939	1.2	18	-F	3	V		.37				F 6
075 HTPR	02	1147	1205	1152	N06	W17	.296	11939	1.2	18	-F		C	1152	.41	.40			E 8
084 HTPR	03	0855	0915	0857	S01	W30	.504	11950	1.1	20	-F		C	0857	.21	.20			E 11
GRP45085	03	0923E	0937D	(0931)	S09	E88	1.000	11949	10.0	14	-N				.17				2 2 1 8
CAPS	03	0923E	0937D		S11	E90	1.000	11949	10.1	14D	-N	2	V						C
ARCE	03	0925E	0935D		S07	E85	.997	11949	9.8	10D	-N		C	0931	.17				T
086 ARCE	03	0931	0940D	0935	N11	W74	.960	11948	27.8	9D	-F		C	0935	.23				8
087 ABST	03	1018	1036	1022	S01	W31	.519	11950	1.1	18	1F		C	1022	1.80	2.10			EJ 6
088 RAMY	03	1028E	1043	1030U	N12	W72	.950	11948	28.0	15D	-F	2	V						DE 7
089 HTPR	03	1059	1115	1105	N13	E30	.519	11945	5.7	16	-F		C	1105	.21	.30			D 5
091 HTPR	03	1153	1225	1156	N07	W21	.363	11939	1.9	32	-F		C	1156	.31	.30			6
092 ARCE	03	1300E	1340D		S10	E85	.997	11949	9.9	40D	-F		C	1310	.17				K 5
093 ARCE	03	1315E	1340D		N08	W30	.504	11939	1.3	25D	-N		C	1320	.45	.50			5
102 ARCE	04	0830E	0905D		S04	E48	.749	11951	8.0	35D	-N		C	0850	.23	.30			9
103 ABST	04	0912	0924D	0915	S12	E77	.978	11949	10.2	12D	1F		P	0915	1.26				DJ 9
104 ARCE	04	0925E	0940D		N13	E50	.778	11947	8.1	15D	-F		C	0930	.26	.40			9
107 ARCE	04	1225E	1225D		S09	E67	.926	11949	9.5		-N		C	1225	.09				8
109 HTPR	04	1357	1358	1357	N09	W50	.766	11939	30.8	1	-F		C	1357	.21	.30			D 8
110 HUAN	04	1404	1415	1407	S11	E71	.951	11949	9.9	11	-F	1	C						T 7
111 HUAN	04	1447	1453	1449	S11	E71	.951	11949	9.9	6	-F	2	C	1449	.21				D 9
118 MANI	05	0223	0227	0225	S08	E60	.874	11949	9.6	4	-F	2		0225	.72	1.34			3
120 ATHN	05	0459	0519	0503	S12	W31	.565	11940	2.9	20	-F	2	C		.17				DE 7
122 MONT	05	0716	0719	0717	S03	E37	.609	11951	8.1	3	-F		C	0717	.21				9
123 HTPR	05	0742	0752	0745	S07	W80	.986	11936	29.3	10	-F		C	0745	.21				9
125 ATHN	05	1252E	1309	1254	N10	W57	.838	11939	1.3	17D	-F	3	V		.33				DE 11
126 ATHN	05	1351E	1359	1353	N10	W57	.838	11939	1.3	8D	-F	3	V		.33				DE 12
128 HUAN	05	1525	1533		S12	W36	.628	11940	2.9	8	-F	1	C	1527	.15	.20			D 10
129 RAMY	05	1548	1607D	1550	S13	E16	.387	11951	6.9	19D	-F	3	C		.56				F 10
130 HUAN	05	1727	1733	1730	S12	E56	.845	11949	9.9	6	-F	1	C	1730	.31	.55			7
133 PALE	05	1832E	1839D	1833	N08	W61	.873	11939	1.2	7D	-F	2	V		.31				4
134 MCMA	05	1846E	1853D		S04	E31	.527	11951	8.1	7D	-F		C	1848	.26	.30			E 6
137 BOUL	06	0001	0012	0002	S08	W48	.757	11940	2.4	11	-F	2	V						6

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE 1972 JUL	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
141 ARCE	06	0815E	0909D		N10	W67	.919	11939	1.3	54D	-N		C	0820	.26				7
142 ATHN	06	0852	0904	0855	N09	E24	.415	11947	8.2	12	-F	2	V		.33				DE 8
144 TEHR	06	1045E	1054	1045U	N10	E24	.418	11947	8.2	9D	-N	4	V		.09				DE 11
GRP45146	06	1113	1135	1118	N10	E26	.448	11947	8.4	22	-F				.42				2 2 2 11
RAMY	06	1112	1129D	1114	N11	E26	.452	11947	8.4	17D	-F	2	C		.56				DE
TEHR	06	1113	1135	1121	N09	E25	.430	11947	8.3	22	-N	4	V		.28				DE
147 CAPS	06	1121E	1135D		S09	W57	.849	11940	2.2	14D	-N	2	S	1131	.80	1.60		(170)	C 10
GRP45149	06	1152	1159	1154	S04	W58	.852	11940	2.1	7	-F				.21				2 2 2 9
MCMA	06	1151	1159	1153	S04	W58	.852	11940	2.1	8	-F		C	1153	.21	.40			D
HTPR	06	1152	1159	1154	S04	W58	.852	11940	2.1	7	-N		C	1154	.21	.40			D
GRP45150	06	1207	1244	1219	S15	W59	.877	11940	2.1	37	-N				.26				2 1 1 10
ARCE	06	1207E	1244D	1219	S15	W59	.877	11940	2.1	37D	-N		C	1219	.26	.50			
HTPR	06	1210	1223	1215	S04	W59	.861	11940	2.1	13	-F		C	1215	.31	.30			E
155 HUAN	06	1842	1847	1843	S11	E41	.685	11949	9.9	5	-F	2	C	1843	.31	.42			DT 4
160 BOUL	06	2308	2313	2309	S09	E39	.653	11949	9.9	5	-N	2	V						2
164 HTPR	07	0525E	0555		S08	E33	.572	11949	9.7	30D	-F		C	0531	.21	.20			7
GRP45165	07	0642	0651	0644	S10	E32	.568	11949	9.7	9	-F				.21				2 2 2 7
TEHR	07	0642E	0646	0644U	S09	E32	.563	11949	9.7	4D	-F	4	V		.09				DE
ATHN	07	0642	0656	0644	S10	E32	.568	11949	9.7	14	-F	2	C		.33				DE
GRP45168	07	0841	0855	0848	S13	W60	.881	11940	2.9	14	-F				.22				2 2 2 8
ARCE	07	0840	0850D	0850	S13	W59	.873	11940	2.9	10D	-N		C	0850	.23	.40			
HTPR	07	0841	0855	0846	S12	W60	.880	11940	2.9	14	-F		C	0846	.21	.40			
172 RAMY	07	1105E	1110	1106U	N11	E10	.215	11947	8.2	5D	-F	3	V		.28				DE 8
175 HTPR	07	1410	1510	1443	S10	E30	.542	11949	9.8	60	-N		C	1424	.31	.40			E 10
181 HUAN	07	1830	1838		N10	E03	.124	11947	8.0	8	-F	1	C						4
184 CRON	08	0248E	0258		S10	E23	.448	11949	9.8	10D	-N	3	V		.40				4
189 ABST	08	0756E	0801D	0756	N12	W04	.161	11947	8.0	5D	-F		P	0756	.81	1.00			BD 10
192 CAPF	08	1229	1250D	1233	N10	W06	.152	11947	8.1	21D	1N		P	1233	3.90	4.80			F 9
193 HUAN	08	1247	1254	1249	S10	E18	.383	11949	9.9	7	-F	1	C						10
199 ABST	09	0710E	0738D	0710	S11	E06	.274	11949	9.7	28D	-N		P	0710	1.44	1.50		69	E 8
200 CAPS	09	0710	0723D		N08	W14	.252	11947	8.2	13D	-N	4	V	0711	.50	.60		(182)	CH 8
211 TEHR	11	0439	0446	0441	S05	W15	.300	11949	10.1	7	-N	4	V		.09				DE 3
214 ATHN	11	0958	1005	1000	S09	W22	.430	11949	9.8	7	-F	3	V		.66				DE 7
215 ABST	11	1200E	1233D	1206	N12	W48	.745	11947	7.9	33D	1F		P	1206	1.89	2.80		65	EJ 9
220 CAPS	12	0735	0738		N09	W60	.864	11947	7.8	3	-N	1	S						8
222 ABST	12	0942	1012D	1010	N14	W48	.747	11957	8.8	30D	-F		P	1010	.90	1.40			DZ 5
223 CAPS	12	1006E	1107		N08	W60	.864	11947	7.9	61D	-N	1	V	1006	.30			(162)	C 5
226 CATA	12	1150E	1225	1155	N13	W49	.757	11957	8.8	35D	-N		P	1155	.58	.88		(199)	4
GRP45228	13	0912E	0941	0920	S10	W52	.806	11949	9.5	29	-F				.50				2 2 1 11
KHAR	13	0912E	0950D		S09	W51	.793	11949	9.6	38D	1F		P	0915			1.80		D
ATHN	13	0918E	0931	0920	S10	W53	.816	11949	9.4	13D	-F	3	V		.50				DE
229 ARCE	13	0931E	0955D		S09	E65	.914	11958	10.3	24D	-F		C	0953	.17	.40			8
230 ATHN	13	1002	1017	1004	S09	W22	.431	11959	11.8	15	-F	2	C		.50				F 8
231 RAMY	13	1038	1044	1039	S12	E69	.942	11958	10.6	6	-N	3	V		.19				DE 10
232 ATHN	13	1146	1155	1149	N10	W65	.904	11957	8.6	9	-F	2	C		.33				DE 8
233 HUAN	13	1339	1352		S13	E65	.919	11958	10.4	13	-F	1	C	1345	.21				9

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
	1972 JUL																		
234 RAMY	13	1455E	1511	1456U	N08	W74	.959	11947	8.1	16D	-F	3	V		.65				DE 8
235 HUAN	13	1545	1555	1548	S13	E64	.912	11958	18.5	10	-F	1	C	1548	.15				D 6
237 HUAN	13	1641	1656	1647	S13	E64	.912	11958	18.5	15	-F	1	C	1647	.31				6
238 PALE	13	1753E	1758D	1754	S11	E62	.895	11958	18.4	5D	-F	2	V		.52				F 4
240 ATHN	14	0515E	0528	0517	N09	W70	.937	11957	9.0	13D	-F	2	C		.33				DE 8
GRP45241	14	0549	0608	0551	S12	E52	.811	11958	18.1	19	-F				.27				2 2 2 7
ATHN	14	0546	0608	0550	S11	E52	.808	11958	18.1	22	-N	2	C		.33				DE
HTPR	14	0551	0607	0551	S13	E52	.813	11958	18.1	16	-F		C	0551	.21	.40			
GRP45242	14	0552	0616	0556	N10	W70	.937	11957	9.0	24	-F				.28				2 2 2 8
CATA	14	0550	0610	0555	N10	W69	.931	11957	9.1	20	-N		C	0555	.23			(180)	T
ATHN	14	0553	0622	0556	N09	W70	.937	11957	9.0	29	-F	2	C		.33				DE
243 TEHR	14	0648E	0702	0653	N12	W71	.943	11957	9.0	14D	-N	4	V		.09				DE 7
245 TEHR	14	1017E	1029	1019U	S08	E71	.950	11958	19.8	12D	-N	3	V		.28				F 6
246 TEHR	14	1038	1044	1039	S12	E69	.942	11958	19.6	6	-N	3	V		.19				DE 7
247 TEHR	14	1226E	1234	1228	N12	W77	.972	11957	8.7	8D	-N	3	V		.19				DE 9
248 ARCE	14	1240E	1255D		S07	E67	.926	11958	19.6	15D	-N		C	1245	.39				9
250 HUAN	14	1422	1427	1424	S13	E51	.804	11958	18.4	5	-F	1	C	1424	.21	.34			D 6
251 HUAN	14	1531	1549	1537U	S13	E50	.794	11958	18.4	18	-N	1	C	1537	.31	.52			5
252 HUAN	14	1723E	1731		S13	E49	.784	11958	18.4	8D	-F	1	P						E 3
259 ABST	15	0519	0545	0521	N11	W89	1.000	11947	8.5	26	1N		C	0521	1.80			60	E 8
262 ABST	15	1018	1105	1024	S10	E38	.649	11958	18.3	47	1N		C	1024	2.70	3.60		58	E 5
263 HTPR	15	1058	1115	1059	N14	E39	.638	11956	18.4	17	-F		C	1059	.10	.10			D 7
GRP45268	15	1350	1405	1356	N12	W90	1.000	11957	8.8	15	-F				.51				2 2 2 7
HTPR	15	1350	1357D	1351	N10	W90	1.000	11957	8.8	7D	-F		C	1351	.21				D
CATA	15	1355E	1405D	1400	N13	W90	1.000	11957	8.8	10D	1F		P	1400	.80			(138)	
273 TEHR	16	0304E	0322	0304U	S08	E45	.726	11958	19.5	18D	-N	4	V		.37				F 4
277 UPIC	17	0618	0628		S23	W02	.463	11961	17.1	10	-F		C		1.26				9
283 RAMY	17	1424	1429	1426	N12	E16	.301	11956	18.8	5	-F	2	C		.28				DE 10
284 RAMY	17	1425	1435D	1430U	S10	E29	.535	11958	19.8	10D	-F	2	V		.48				DE 11
286 CATA	17	1605	1615	1605	S14	E11	.366	11958	18.5	10	-N		C	1605	.58	.62		(151)	6
290 ATHN	18	0750	0758	0753	S10	E15	.356	11958	19.5	8	-F	3	C		.33				DE H 9
291 ARCE	18	0934E	0947D		S08	E17	.360	11958	19.7	13D	-F		C	0943	.59	.60			11
GRP45292	18	1029E	1041	1032	S08	E12	.299	11958	19.3	12	-F				.61				2 2 2 12
RAMY	18	1029E	1042	1031U	S08	E12	.299	11958	19.3	13D	-F	3	C		.31				DE
ABST	18	1031E	1040	1033	S07	E12	.287	11958	19.3	9D	-F		P	1033	.90	.90			D
293 RAMY	18	1148	1147	1142	S09	E09	.280	11958	19.2	7	-F	3	C		.28				DE 9
294 ATHN	18	1237	1247	1241	S08	E10	.277	11958	19.3	10	-N	3	C		.33				DE 7
295 ARCE	18	1339E	1400D		S21	E33	.659	11969	21.0	21D	-F		C	1350	.42	.60			11
297 BOUL	18	2125	2135	2128	N12	W02	.133	11956	18.7	10	-F	2	V						3
300 ATHN	19	0622	0632D	0624	N08	W72	.949	11953	13.9	10D	-F	3	C		.33				DE 7
301 TEHR	19	0702	0711	0706	N20	W68	.925	11953	14.2	9	-F	4	V		.19				DE 8
302 ARCE	19	0800E	0800D		S11	E03	.275	11958	19.6		-F		P	0800	.17	.20			11
305 ATHN	20	0739	0801	0741	N13	W28	.365	11956	18.8	22	-F	2	C		.17				DE 8
306 ONDR	20	1623E	1638		N13	W25	.438	11956	18.8	15D	-N		V	1628			2.00		C 6

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	DATE	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hg	MAX. INT. %	
	1972 JUL																		
308 KOOA	21	0210	0235	0229	S10	W38	.652	11958	18.2	25	-B		C	0220	.85	.85	1.40		E 6
309 TEHR	21	0251	0308	0255	S09	W20	.411	11958	19.6	17	-N	3	V		1.19				F 6
310 TEHR	21	0356	0405	0358	N09	W40	.641	11956	18.2	9	-N	4	V		.46				U 5
313 UPIC	21	0725	0741		S10	W45	.734	11958	17.9	16	-F		C	0725	1.85				8
319 HUAN	21	1609	1616		N08	W49	.752	11956	18.0	7	-F	1	C						6
GRP45324	22	0514	0524	0518	S10	W37	.640	11958	19.4	10	-F				.54				2 2 2 6
CRON	22	0512E	0523		S10	W37	.640	11958	19.4	11D	-F	3	V		.70				
TEHR	22	0515	0524	0518	S10	W36	.627	11958	19.5	9	-N	3	V		.37				F
325 ABST	22	0529E	0533D	0529	S09	W51	.796	11958	18.4	4D	1F		P	0529	1.80	3.00		74	BEJZ 6
328 ABST	22	0834E	0852D	0840	S06	W54	.819	11958	18.3	18D	1F		P	0840	1.44	2.50		65	EZ 11
330 HTPR	22	1125	1154	1127	S25	W78	.989	11961	16.6	29	-F		C	1127	.21				D 6
337 ARCE	23	0925E	0950D		S14	E90	1.000	11970	30.1	25D	-N		C	0930	.17				H 10
GRP45338	23	1019	1024	1019	S10	W53	.818	11958	19.5	5	-F				.25				2 2 2 6
TEHR	23	1018E	1024	1019U	S10	W52	.808	11958	19.5	6D	-F	3	V		.28				F
HTPR	23	1019	1023	1019	S10	W53	.818	11958	19.5	4	-F		C	1019	.21				D
339 ARCE	23	1055E	1100D		S15	E90	1.000	11970	30.2	5D	-F		P	1100	.13				6
340 HTPR	23	1333	1359	1337	S15	E85	.998	11970	29.9	26	-N		C	1337	.21				AE 8
341 HTPR	23	1418	1433	1419	S15	E85	.998	11970	30.0	15	-F		C	1419	.21				E 9
343 HUAN	23	1714	1723	1717	S16	E88	1.000	11970	30.3	9	-F	1	C	1717	.21				D 6
344 HUAN	23	1743U	1752	1747	S16	E87	1.000	11970	30.3	9D	-N	1	C	1747	.21				D 6
348 HUAN	23	2047E	2053		S16	E87	1.000	11970	30.4	6D	-F	1	P	2047	.21				D 3
351 MONT	24	0839	0847	0842	S11	W80	.988	11958	18.4	8	-F		C	0842	.10				10
352 ARCE	24	0910E	0925D		S09	W80	.988	11958	18.4	15D	-F		C	0916	.17				9
353 HTPR	24	1121	1131	1124	N15	W75	.962	11956	18.8	10	-F		C	1124	.21				E 5
354 ARCE	24	1315E	1345D		S16	E78	.985	11970	30.4	30D	-F		C	1320	.17				9
357 TEHR	25	0530E	0540	0530U	S09	W34	.598	11971	22.7	10D	-F	2	V		.19				DE 6
359 ATHN	25	0731	0737	0733	N07	E43	.679	11968	28.5	6	-F	3	C		.33				DE 7
GRP45360	25	0805	0815	0811	S15	E82	.994	11970	31.5	10	-F				.10				2 1 1 9
MONT	25	0805	0815	0811	S15	E82	.994	11970	31.5	10	-F		C	0811	.10				
ARCE	25	0805E	0831D		S15	E82	.994	11970	31.5	26D	-F		C	0825	.17				
361 ARCE	25	0810E	0825D		S15	E65	.924	11970	30.2	15D	-F		C	0820	.26	.60			9
362 MONT	25	0922	0926	0922	S16	E61	.898	11970	30.0	4	-F		C	0922	.10				12
363 MONT	25	0945	0952	0947	N07	E12	.209	11972	26.3	7	-F		C	0947	.52				H 8
364 MONT	25	1051	1104	1100	S15	E80	.990	11970	31.5	13	-F		C	1100	.21				H 9
365 MONT	25	1108	1128	1115	N07	E11	.192	11972	26.3	20	-F		C	1115	.10				H 9
366 BUCA	25	1305E	1345D		N07	E10	.175	11972	26.3	40D	1F		P	1325	2.21	2.20			7
367 HUAN	25	1416U	1427D		S14	E80	.989	11970	31.6	11D	-F	1	P	1418	.41				ET 7
368 HUAN	25	1644	1648	1644	S14	E78	.984	11970	31.5	4	-F	1	C						6
369 HUAN	25	1839	1847	1841	S04	E41	.669	11968	28.9	8	-F	2	C	1841	.15	.20			D 5
373 CATA	26	0620	0625	0620	N08	E28	.468	11968	28.4	5	-F		C	0620	.34	.39		(145)	5
374 MONT	26	0708	0721	0710	N08	E01	.050	11972	26.4	13	-F		C	0710	.52				H 8
378 TEHR	26	1032E	1040	1032U	S05	E27	.483	11968	28.5	8D	-N	2			.28				DE 7
379 RAHY	26	1410E	1418	1413U	N06	W06	.105	11972	26.1	8D	-F	3	V		.31				DE 9

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	DATE 1972 JUL	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
383 ABST	27	0617E	0637	0619	N09	W12	.215	11972	26.4	20D	-F		P	0619	1.80	1.80			E 8
386 CAPS	27	0646E	0659D		S12	W60	.884	11971	22.8	13D	-N	1	S	0649	.30			(171)	7
387 HTPR	27	0647	0700	0650	S20	E65	.932	11974	1.2	13	-F		C	0650	.10				D 7
388 MONT	27	0801	0823	0809	S13	E43	.725	11970	30.6	22	-N		C	0809	.52				8
GRP45389	27	0923E	0950	0931	S05	E17	.340	11968	28.7	27	-F				.61				2 2 2 10
MONT	27	0923E	0950	0931	S05	E18	.354	11968	28.7	27D	-N		C	0931	.72				
CAPS	27	0931E	0948D		S05	E15	.313	11968	28.5	17D	-F	2	V	0932	.50	.60		(157)	C
390 CAPS	27	1006E	1026D		S17	E62	.908	11974	1.1	20D	-N	2	V	1007	.30			(161)	C 8
391 CAPS	27	1006E	1030D		S13	E43	.725	11970	30.6	24D	-F	2	V	1007	.50	.70		(157)	C 8
392 ARCE	27	1158	1219	1158	N09	W16	.280	11972	26.3	21	-F		C	1158	.20	.20			HT 8
GRP45393	27	1241	1327	1254	S15	E35	.646	11970	30.2	46	-F				.76				2 2 2 7
ARCE	27	1233E	1354		S15	E36	.657	11970	30.2	81D	-N		C	1249	.78	1.00			
RAMY	27	1249	1259	1254	S14	E33	.616	11970	30.0	10	-F	1	C		.74				DE
394 CANR	27	1320	1350	1325	S48	E47	.923	10000	31.1	30	-B	2	V	1325	.30	.50			7
395 CANR	27	1352	1411	1354	S04	E00	.163	11968	27.6	19	-N	3	V	1354	.50	.50			6
396 HUAN	27	1651U	1703		S20	E60	.900	11974	1.2	12D	-F	1	C						5
397 CANR	27	1733	1745	1736	S14	E17	.434	11970	29.0	12	-N	3	V	1736	.30	.30			5
400 CRON	27	2355E	0002		S20	E45	.777	11974	31.4	7D	-N	3	V		.30				4
403 MONT	28	0651	0659	0652	N07	W27	.452	11972	26.3	8	-N		C	0652	.72				H 6
404 TEHR	28	0806	0810	0807	S06	E48	.758	11974	31.9	4	-N	3	V		.09				DE 10
GRP45405	28	0809	0835	0815	N07	W29	.483	11972	26.2	26	-F				.36				2 1 1 10
ARCE	28	0809	0835D	0815	N07	W29	.483	11972	26.2	26D	-F		C	0815	.36	.40			
MONT	28	0821	0841	0831	N06	W31	.513	11972	26.0	20	-N		C	0831	1.13				H
407 ARCE	28	0923E	0925D		N07	W10	.175	11968	27.6	2D	-F		P	0923	.17	.20			11
408 CAPS	28	1053E	1115D		S15	E21	.488	11970	30.0	22D	-N	2	V	1104	.50	.60			C 6
412 HTPR	28	1410	1430	1413	N09	W33	.543	11972	26.1	20	-F		C	1413	.21	.20			D 10
413 HUAN	28	1626	1632		S20	E48	.805	11974	1.3	6	-F	1	C						6
414 BOUL	28	1735	1755	1737	S12	E35	.628	11970	31.4	20	-F	3	V	1737	.30	.40			7
415 BOUL	28	2045	2103	2047	S12	E22	.469	11970	30.5	18	-F	3	V						5
418 HUAN	28	2142	2147	2144	S19	E46	.782	11974	1.4	5	-F	2	C	2144	.36	.58			E 6
419 VORO	28	2213E	2232	2213	S14	E15	.415	11970	30.1	19D	-N		C	2213	1.29	1.38		59	E 5
420 BOUL	28	2352	0002	2354	S17	E48	.774	11974	1.4	10	-F	3	V						5
421 PALE	29	0010E	0020D	0014	N07	W39	.626	11972	26.1	10D	-N	2	C		.55				F 4
422 PALE	29	0043E	0046D	0044U	S05	W04	.195	11968	28.7	3D	-N	2	V		.62				F 4
423 KODA	29	0245	0255	0245	N07	W41	.653	11972	26.0	10	-B		V	0245	1.26	1.30	1.32		4
424 TEHR	29	0549	0601	0553	N08	W43	.679	11972	26.0	12	-N	2	V		.45				F 8
GRP45425	29	0644	0656	0646	N11	W43	.680	11972	26.1	12	-F				.16				2 2 2 10
TEHR	29	0643	0651	0646	N11	W41	.655	11972	26.2	8	-F	3	V		.09				DE
CATA	29	0645	0700D	0645	N11	W44	.693	11972	26.0	15D	-N		P	0645	.23	.32		(193)	
426 ARCE	29	0852E	0859D		N13	E86	.996	11976	4.8	7D	-F		P	0859	.09				T 9
428 ARCE	29	0937E	0950D		N13	E86	.996	11976	4.9	13D	-F		C	0941					9
GRP45429	29	0937E	1000D	(0950)	N10	W47	.728	11972	25.9	23	-N				.29				2 2 1 10
ARCE	29	0937E	1000D		N09	W46	.716	11972	26.0	23D	-B		C	0950	.29	.40			
KHAR	29	0942E	0952D		N10	W47	.728	11972	25.9	10D	-F		V				1.50		D
431 ATHN	29	1127	1143	1131	S06	W10	.263	11968	28.7	16	-F	3	C		.33				DE 6

SOLAR FLARES
Unconfirmed
JULY 1972

OBSERVATORY	OBSERVED UT				LOCATION					DURATION — MIN.	IMPORTANCE	OBS. COND.	OBS. TYPE	MEASUREMENTS					REMARKS
	DATE	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY					TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
	1972 JUL																		
433 BOUL	29	1313	1320	1316	N12	E85	.994	11976	4.9	7	-N	3	V	1316	.65	1.80			8
438 CRON	30	0255E	0258	0255U	N12	E80	.982	11976	5.1	3D	-N	3	V	0255	.45				4
GRP45440	30	0817E	0919D	(0830)	N14	E75	.962	11976	5.0	62	-N				.26				1 1 1 8
ARCE	30	0817E	0919D		N12	E74	.957	11976	4.9	62D	-N		C	0830	.26				
ARCE	30	0822E	0900D		N16	E76	.966	11976	5.0	38D	-F		C	0835	.39				
441 CATA	30	1105E	1115D	1110	S15	W02	.354	11970	30.3	10D	-N		P	1110	.29	.31		(162)	8
GRP45443	30	1220E	1242	1222	N07	W24	.405	11968	28.7	22	-N				.46				2 1 1 8
RAMY	30	1220E	1242	1222	N07	W24	.405	11968	28.7	22D	-N	3	C		.46				F
ATHN	30	1234E	1242	1234U	N08	W27	.453	11968	28.5	8D	-F	3	V		.33				DE
444 ATHN	30	1604E	1608	1604U	N11	E70	.936	11976	4.9	4D	-N	2	V		.33				F 5
446 RAMY	30	1825E	1835	1827U	S13	W09	.353	11970	30.1	10D	-F	3	C		.56				DE 5
447 PALE	30	1839	1844D	1840	S20	E20	.534	11974	1.3	5D	-N	3	C		.19				F 5
448 BOUL	30	1846	1853	1848	S20	E26	.591	11974	1.7	7	-F	3	V			.70			6
452 PALE	31	0325E	0329D	0328	S04	E50	.776	11979	3.9	4D	-N	2	C		.27				F 5
453 TEHR	31	0429	0442	0435	N13	E62	.879	11976	4.8	13	-N	3	V		.46				F 6
GRP45454	31	0637E	0652	0641	N13	E66	.909	11976	5.2	15	-F				.26				2 2 2 6
TEHR	31	0637E	0650D	0642	N13	E65	.902	11976	5.2	13D	-F	3	V		.19				DE H
ATHN	31	0638E	0652	0640	N12	E66	.909	11976	5.2	14D	-N	3	V		.33				DE
455 CATA	31	0700E	0710D	0700	N15	E63	.887	11976	5.0	10D	-N		P	0700	.23	.51		(193)	8
GRP45456	31	0841E	0918	0854	N12	E63	.887	11976	5.1	37	-N				.29				2 2 2 7
ARCE	31	0841E	0925D		N12	E67	.916	11976	5.4	44D	-N		C	0900	.20				
TEHR	31	0849E	0910	0854	N12	E58	.844	11976	4.7	21D	-N	4	V		.37				F
457 ARCE	31	0938E	1000D		S13	W14	.396	11970	30.4	22D	-F		C	0947	.68	.70			8
GRP45460	31	1159	1215D	1201	N15	E60	.862	11976	5.0	16	-N				.70				2 2 1 8
RAMY	31	1159	1213D	1201	N15	E60	.862	11976	5.0	14D	-N	2	C						F
CAPS	31	1203E	1215D		N15	E59	.854	11976	4.9	12D	-N	2	V	1205	.70	1.50		(182)	C
GRP45461	31	1324	1336	1326	N07	W77	.972	11972	25.8	12	-F				.51				2 2 2 8
RAMY	31	1324	1336	1326U	N07	W76	.968	11972	25.9	12	-F	3	V		.56				DE
HUAN	31	1326E	1335		N06	W77	.972	11972	25.8	9D	-N	1	C	1327	.46				
462 PALE	31	2031E	2042D	2032U	N12	E51	.774	11976	4.7	11D	-F	3	V		.72				F 3

"Remarks":

A = Eruptive prominence, base at >90°.
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No spots visible in the neighborhood.
H = Flare with high velocity dark surge.
I = Very extensive active region.
J = Plage with flare shows marked intensity variations.
K = Several intensity maxima.
L = Filaments show effects of sudden activation.
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the calcium II lines H or K.
P = Flare shows helium D_3 in emission.
Q = Flare shows the Balmer continuum in emission.
R = Marked asymmetry in Hα line.
S = Brightening follows disappearance of filament (same position).
T = Region active all day.
U = Close and somewhat parallel bright filaments (‖ or Y shape).
V = Occurrence of an explosive phase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide Hα emission.
Y = Onset of a system of loop-type prominences.
Z = Major sunspot umbra covered by flare.

Note:
A line of explanation has been added before each flare event having more than one maxima. The total number of stations reporting some part of the event is given. The number of stations observing at the time of the principal maximum but not reporting the event is given in the second statement. Care should be exercised in utilizing the numbers in the remarks column. The first number is the number of stations reporting the individual maximum, and not the total number of stations reporting some part of the flare event. The last number is the number of stations reporting at the time of the individual maximum and not necessarily the total number of stations observing during the flare event. GRP numbers may appear several times in order to indicate secondary maxima. An asterisk beside an importance indicates a secondary maximum. The word "GRP" has also been omitted to aid in pointing to this condition.
When it is impossible to determine the time of Maximum Phase from the individual reports the time of Area Measurements is used. This time appears in parentheses. For Flares reported by only one station the last 3 digits of the group number appear to the left of the station code.

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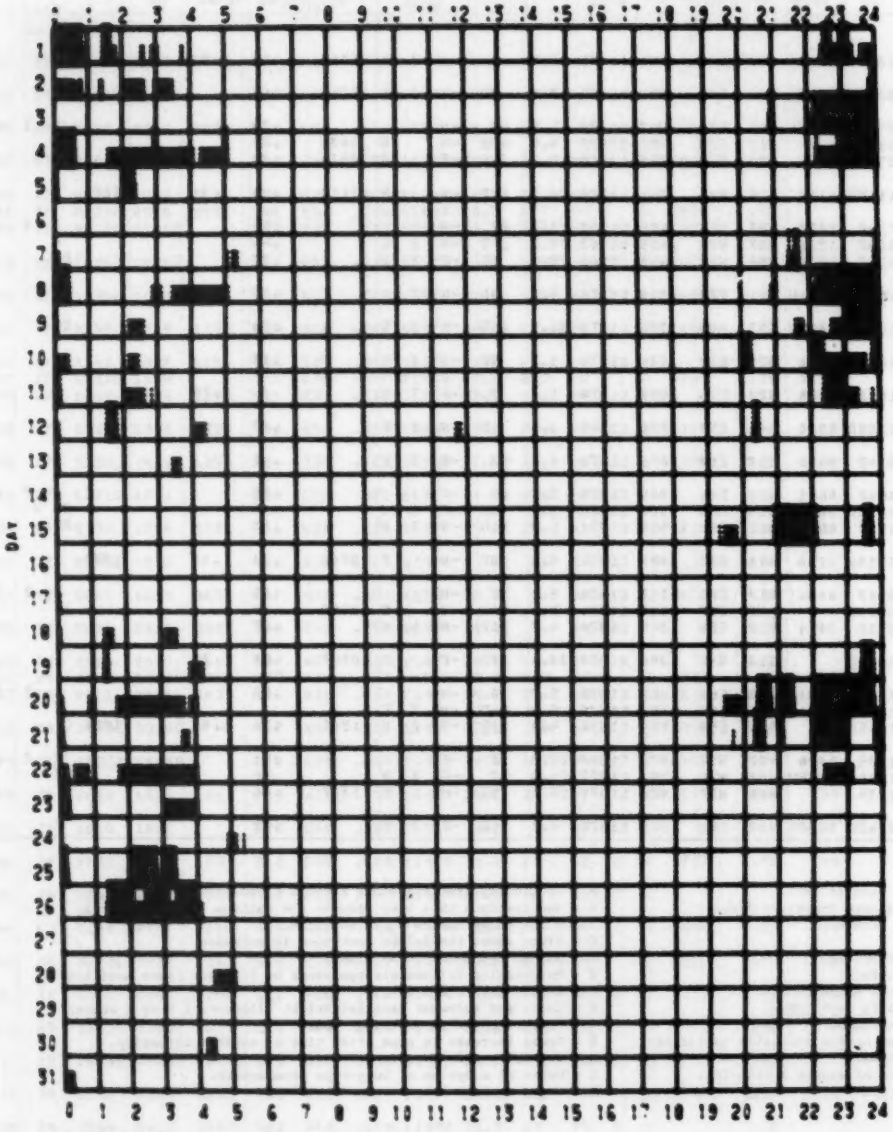
Jul 72

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

JULY 1972

HOUR-UT



Observatories included in total patrol:

Abastumani	Capri-S (Swedish)	Kharkov	Mitaka	Tachkent
Arcetri	Carnarvon	Kiev	Monte Mario	Tehran
Athenes	Catania	Kodaikanal	Ondrejov	Upice
Boulder	Haute-Provence	Locarno	Palehua	Voroshilov
Bucharest	Herstmonceux	Manila	Ramey	Wendelstein
Capri-F (German)	Huancayo	McMath-Hulbert	Siberie	

Times of no flare patrol are shown by the shaded area for each day divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JULY 1972

JUL 1972	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
1	3750	TYKW	20	0250	0320	180	7.0	3.0		
	2000	TYKW	20	0255	0315	110	3.0	1.0		
	9400	TYKW	20	0300	0320	120	3.0	1.0		
	536	ONDR	8	1129.5	1129.5	.5	50.0			
	2800	OTTA	20	1340	1435	140	1.6	0.8		
	536	ONDR	3	1407.5	1407.5	1.5	55.0			
	18	MCMA	6	2005	2012	8			2	
	18	MCMA	42	2043	2113	27			2	
2	1420	CRON	8	0153.5	0155	3	7.0	3.0		
	2695	CRON	3	0205	0208.5	4.5	4.0	1.0		
	2695	CANR	21	0844	0847.5	43.5	7.0	2.0		
	245	SGMR	44	0916 E	1216	903 D	18.0			
	2800	OTTA	21	1250	1359	140	6.2	3.1		
	9500	BERL	20	1306.3	1314	12	3.0	1.9		
	1500	BERL	20	1313.5	1314.5	3	2.5	0.8		
	1420	CANR	8	1314	1315	2.5	5.0	2.0		
	2695	CANR	45	1346	1358.5	19.5	7.0	2.0		
	2695	CANR		1346	1359.5					
	1420	CANR	3	1354.5	1358	9.5	2.0	1.0		
	9500	BERL	20	1358	1401	30	7.3	2.4		
	2800	OTTA	1	1355	1356.5	4	2.8	1.4		
	1500	BERL	20	1355.2	1358.2	7.3	1.8	0.8		
	4995	CANR	3	1805	1807.5	6	7.0	3.0		
	1420	CANR	3	1805.5	1808.5	4	4.0	1.0		
	18	MCMA	42	1816	1823	15			1	
	18	BOUL	41	1827	1828	8			1	
	2800	OTTA	1	1838	1839	7	1.8	0.9		
	18	MCMA	42	1900	1913	17			1	
	2800	OTTA	20	2035	2045	30	2.0	1.0		
3	23	POTS	45	0700	0700	.8	10000.0U	1200.0U		
	202	IZMI	6	0723.9	0724	.2	13.0	8.0		
	30	UPIC	45	0906	0907	4				
	202	IZMI	6	0907.5	0907.7	.3	8.0	4.0		
	100	HIRA	6	0907	0907.5	1.5	85.0	30.0		
	23	POTS	45	0907.3	0907.4	.9	5000.0	1000.0		
	30	UPIC	45	1000	1000.5	2				
	23	POTS	45	1000.4	1000.8	1.2	10000.0	2000.0		
	9500	BERL	1		1248.3		5.0U			
	9285	ARCE	2	1247.9	1248.4	2				
	2700	PENN	1	1247.8	1248.3	1.7	4.0	1.8		
	1500	BERL	46	1247.5	1248.3	2.5	8.4	2.4		
	960	PENN	45	1247.8	1248.7	1.8	3.5	0.7		
	4995	CANR	45	1248	1249	2.5	18.0	6.0		
	1420	CANR	8	1248	1248.5	1	5.0	2.0		
	1420	ARCE	4	1248.1	1248.4	2				
	2700	PENN	1	1252.8	1253.4	1.8	2.6	1.4		
	960	PENN	45	1252.7	1253.2	1.8	1.7	0.5		
	4995	CANR	3	1253.5	1254	2	7.0	2.0		
	30	UPIC	45	1308	1308.5	2				
	18	MCMA	42	1343	1355	14			1	
	23	POTS	41	1401.6	1401.6	1.3	700.0	70.0		
	18	MCMA	41	1424	1429	6			1	
	2700	PENN	20	1614	1747.5	197	21.8	10.9		
	4995	CANR	3	1647	1648	2.5	7.0	3.0		
	2800	OTTA	1	1647	1647.9	1.2	1.0	0.5		
	1420	BOUL	45	1647	1648.5	2.5	4.0	2.0		
	225	HARS	45	1703	1704	2	30.0	10.0		
	2800	OTTA	21	1720	1740	150	6.2	3.1		
	2695	CANR	45	1729	1748	51.5	9.0	3.0		
	4995	CANR	45	1734.5	1748.5	26	7.0	2.0		
	1420	CANR	45	1736	1748	21.5	5.0	1.0		
	2695	BOUL	3	1737.5	1741	7	4.0	2.0		
	9400	HUAN	20	1739.6	1847.4	27.5	12.8	4.8		
	2800	OTTA	20	1744	1747	10	3.8	1.9		
	1420	BOUL	3	1745	1748	5	2.0	1.0		
	237	TRST	42	1751	1751.1	3.2	260.0			
	2800	OTTA	20	2010	2255	230	3.4	2.0		
4	9400	TYKW	1	0021.3	0022	2	6.0	3.0		
	3750	TYKW	1	0021.3	0022	2.5	4.0	2.0		
	8800	MANI	1	0525.7	0526.5	2.3	8.1	2.7		
	4995	MANI	1	0525.7	0526.5	2	7.9	1.3		
	9285	ARCE	22	0943	1000.1	77 U				
	1420	ARCE	20	0943	0953.8	71 U				
	30	UPIC	45	1052	1055	4.5				
	113	POTS	8	1055.5	1055.5	.1	300.0	100.0		
	23	POTS	45	1055.6	1055.7	.7	12000.0	3000.0		
	2800	OTTA	20	1107	1110	5	1.4	0.8		
	2800	OTTA	21	1120	1200	80	4.6	2.3		
	9500	BERL	21	1132.7	1200	57	14.0	5.3		
	9285	ARCE	21	1132.4	1158	75				
	8800	SGMR	22	1132.9	1135.9	46.3	13.9	6.4		
	4995	SGMR	22	1132.7	1135.8	44.8	20.0	9.4		
	4995	CANR	45	1132.5	1135.5	4	13.0	4.0		
	3100	CRIM	3	1132	1136	10	14.0	5.0		
	2800	OTTA	45	1132.2	1135.6	4.8	18.4	7.0		
	2800	OTTA	45	1132.2	1134	2.8	9.2			
	2700	PENN	45	1132.4	1135.6	6.8	26.4	6.1		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JULY 1972

JUL 1972	FREQUENCY STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
	2695 CANR	45	1132	1135.5	6	16.0	5.0		
	2695 SGMR	22	1132.8	1135.5	44.7	16.0	7.8		
	1415 SGMR	22	1132.9	1203.7	44.3	3.6	1.8		
	7000 SAOP	21	1133	1136.1	60.5	18.6			
	7000 SAOP	20	1133		60.5	17.3			
	10700 PENN	1	1135.3	1135.9	1.9	6.3	2.5		
	9500 BERL	1	1135	1135.7	1.3	10.0			
	9285 ARCE	1	1135.2	1136	2				
	7000 SAOP	3	1135.5	1136.1	1.7	13.6	6.9		
	2800 OTTA	45	1135	1135.6	2	18.4			
	2800 OTTA	29	1137		6	2.8	1.4		
	606 SGMR	22	1158.8	1205	19.2	7.5	3.7		
	1500 BERL	4	1202.3	1203.7	14	9.6	2.0		
	1420 CANR	8	1203	1204	3	10.0	3.0		
	1420 ARCE	4	1203.8	1204	2.6				
	30 UPIC	40	1244		92				
	18 MCMA	6	1244	1245	3			1	
	23 POTS	45	1245.5	1246.8	1.9	8000.0	1600.0		
	113 POTS	45	1311.7	1312.8	1.2	100.0	10.0		
	23 POTS	45	1311.5	1313	4.1	40000.0	8000.0		
	18 MCMA	6	1311	1315	5			3	
	237 TRST	41	1312.6	1312.6	.4	160.0			
	536 ONDR	3	1313	1313	2	50.0			
	2800 OTTA	24	1340		12	1.6			
	23 POTS	45	1413.7	1414.6	2.3	6000.0	1500.0		
	18 MCMA	6	1413	1416	4			2	
	2800 OTTA	20	1540	1810	230	10.6	5.0		
	2800 OTTA	20	1540	1722	145	9.4			
	18 MCMA	41	1612	1621	10			3	
	113 POTS	41	1616.9	1617.4	5.1	600.0	5.0		
	245 SGMR	6	1617.2	1619.1	5.2	12.0	2.8		
	2700 PENN	20	1645.3	1715.7	75.1	11.2	5.6		
	9400 HUAN	20	1648.2	1730.9	68.1	19.3	7.6		
	2695 SGMR	22	1649.5	1810.7	124.9	11.1	4.0		
	8800 SGMR	22	1650.2	1807.7	127.3	37.0	13.0		
	4995 SGMR	22	1650	1808.4	126	25.2	9.0		
	10700 PENN	20	1655.1	1723	63.3	11.2	5.6		
	4995 BOUL	45	1712.5	1721.5	19	10.0	3.0		
	4995 CANR	21	1712	1715.5	16.5	11.0	3.0		
	15400 SGMR	22	1723.7	1808	98.3	33.0	12.0		
	18 MCMA	41	1733	1738	5			1	
	410 SGMR	6	1736.6	1736.8	.4	2.0	1.0		
	245 SGMR	6	1736.6	1736.8	.5	1.8	.9		
	245 SGMR	6	1759.5	1759.8	.5	6.7	3.3		
	18 MCMA	6	1759	1802	5			1	
	4995 CANR	3	1800	1807.5	20.5	17.0	5.0		
	9400 HUAN	21	1801.1	1807.7	87.2	23.1	7.8		
	4995 BOUL	3	1803	1808	9.5	14.0	4.0		
	10700 PENN	20	1804.4	1808	50.4	22.9	11.4		
	2700 PENN	20	1804.4	1807.8	46.5	12.8	2.5		
	7000 SAOP	21	1805.6	1808.1	47.3	27.6			
	7000 SAOP	20	1805.6		47.3	15.0			
	2800 OTTA	20	1805	1810	85	10.6			
	2695 CANR	3	1805	1810	12.5	7.0	3.0		
	7000 SAOP	3	1807.2	1808.1	4.5	15.0	8.7		
	18 MCMA	6	1848	1850	3			1	
	18 MCMA	41	1912	1914	10			1	
	18 MCMA	42	2131	2144	14			1	
	4995 BOUL	21	2211.5	2214	16	13.0	3.0		
	2800 OTTA	1	2211	2214	8	4.0	1.8		
	2700 PENN	1	2211.2	2213.8	5.4	5.7	2.9		
	3750 TYKW	1	2212	2214	6	9.0	3.0		
	2695 BOUL	3	2212.5	2214.5	3	3.0	1.0		
	245 SGMR	6	2243.3	2244	1	7.4	3.0		
	100 HIRA	6	2243	2244.2	2.5	110.0	35.0		
	2695 PENT	26	2300		40	5.4			
	606 SGMR	40	2322	2323.7	4.2	17.2	4.0		
	410 SGMR	6	2322	2323.7	2.2	19.1	6.0		
	245 SGMR	6	2322	2322.9	2.5	105.0	28.0		
	208 VORO	41	2322.2	2324.2	2.2	142.0			
	100 HIRA	6	2322 E	2323.9	3 D	240.0	80.0		
	2695 PENT	24	2340		40	7.6			
5	3750 TYKW	20	0004	0032	90	7.0	3.0		
	100 HIRA	6	0057.7	0058.3	1.5	240.0	100.0		
	208 VORO	6	0058	0058.6	.8	114.0	24.0		
	200 HIRA	6	0058	0058.7	1	140.0	30.0		
	100 HIRA	6	0158.7	0158.7	1	150.0	30.0		
	100 HIRA	6	0232.8	0233.4	1	140.0	40.0		
	9400 TYKW	1	0535	0540	10	3.0	1.0		
	3750 TYKW	20	0535	0537	35	3.0	1.0		
	9100 GORK	1	1032.8	1034.6	3.2	11.0	6.0		
	536 ONDR	3	1114.5	1114.5	1.5	50.0			
	536 ONDR	8	1154	1154	1	70.0			
	3100 CRIM	1	1206	1208	4	4.0	1.0		
	4995 CANR	3	1441.5	1443.5	3	5.0	2.0		
	4995 CANR	3	1458	1500	6	5.0	3.0		
	2700 PENN	24	1704.2	1823		10.4			
	4995 CANR	3	1749.5	1752	5	7.0	3.0		
	18 BOUL	42	1752	1757	9			1	

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	18	MCMA	42	1753	1756	9			1	
	2800	OTTA	20	1810	1840	110	2.4	1.2		
	18	BOUL	42	1900	2123	160			3	
	18	MCMA	42	1902	2103	121			3	
	100	HIRA	6	1957	1957.6	1	90.0	30.0		
	2800	OTTA	20	2000	2100	120	2.6	1.3		
6	2695	CANR	3	1011.5	1013	2.5	4.0	1.0		
	1500	BERL	20	1034	1100	46	1.9	0.7		
	3100	CRIM	1	1055	1101	30	7.0	2.0		
	2800	OTTA	21	1055	1110	45	4.0	2.0		
	9500	BERL	20	1058	1110	30	5.7	2.0		
	2800	OTTA	1	1058	1100.6	4	4.2	3.1		
	2695	CANR	45	1058	1100.5	6	5.0	2.0		
	113	POTS	8	1154.4	1154.5	.1	700.0	250.0		
	9285	ARCE	22	1225.8	1243.2	70				
	1420	ARCE	22	1227.9	1231.8	12				
	2800	OTTA	21	1228	1237	80	8.8	4.4		
	2700	PENN	20	1228.8	1231.3	72.6	9.3	4.9		
	2695	CANR	45	1228	1231.5	13	10.0	3.0		
	4995	SGMR	20	1229.9	1242	27.8	6.1	3.0		
	3100	CRIM	3	1229	1232	40	9.0			
	2695	SGMR	20	1229.8	1231.6	36.2	7.7	3.5		
	1500	BERL	3	1229	1231.7	40	7.3	1.0		
	1420	CANR	45	1229	1232	13	7.0	1.0		
	1415	SGMR	20	1229.3	1231.7	16.8	6.3	3.0		
	2800	OTTA	2	1230	1231.5	2.5	7.4	3.6		
	9500	BERL	20	1231	1242.5	39	7.6	2.0		
	8800	SGMR	20	1234.7	1235.8	14.3	4.8	2.0		
	2800	OTTA	20	1350	1440	170	3.2	1.6		
	1420	CANR	3	1409	1410.5	2.5	4.0	1.0		
	606	SGMR	1	1409.2	1409.6	1.4	6.0	2.5		
	410	SGMR	6	1409	1409.8	2	3.5	1.6		
	245	SGMR	6	1409.3	1410.3	1.7	7.0	3.0		
	2700	PENN	20	1418	1430	48.4	5.3	2.7		
	18	MCMA	41	1554	1557	4			1	
	930	BORD	41	1646	1647.8	2	58.0	2.0		
	2695	CANR	21	1743	1746	12.5	4.0	1.0		
	2800	OTTA	1	1744.2	1746	2	2.0	1.0		
	2800	OTTA	21	1745		35	1.6	1.0		
	2700	PENN	1	1745.2	1745.9	1.5	5.3	2.1		
	18	BOUL	42	1837	1842	35			1	
	18	MCMA	42	1853	1857	13			1	
	2800	OTTA	20	2315	2355	125	5.8	2.8		
	2000	TYKW	3	2326.8	2327.6	1.2	15.0	6.0		
	1420	BOUL	3	2326.5	2328	2.5	7.0	2.0		
	2695	BOUL	8	2327	2328	1.5	7.0	2.0		
	1000	TYKW	45	2327	2327.8	1	14.0	5.0		
	9400	TYKW	3	2350	2353	6	16.0	10.0		
	3750	TYKW	1	2350	2353	6	8.0	4.0		
	9400	TYKW	29	2356		65	5.0	2.0		
	3750	TYKW	29	2356		65	4.0	2.0		
7	2695	CANR	3	0926	0927	2	2.0	1.0		
	536	ONDR	8	0939	0939	1	80.0			
	4995	CANR	3	1050	1053	7.5	6.0	2.0		
	2800	OTTA	21	1055	1150	155	4.0	2.8		
	9500	BERL	22	1118.5	1123.1	48	13.0	3.0		
	3100	CRIM	1	1118	1123	8	6.0	2.0		
	4995	CANR	45	1121.5	1122.5	4.5	11.0	3.0		
	2695	CANR	8	1121.5	1123	2	6.0	2.0		
	8800	SGMR	1	1122.7	1123.3	1.8	8.8	4.0		
	4995	SGMR	1	1122.6	1123.3	3.5	7.2	3.0		
	2700	PENN	1	1122.6	1123	.9	5.2	1.7		
	2695	SGMR	1	1122.7	1123.2	1.4	4.0	2.0		
	1500	BERL	1	1122.6	1123	1.7	3.0	1.0		
	2800	OTTA	8	1123	1123		5.4			
	1415	SGMR	1	1123	1123.2	.4	1.5	.8		
	2800	OTTA	22	1340	1450	140	5.0	2.8		
	4995	CANR	3	1426	1429	4.5	7.0	3.0		
	2695	CANR	3	1658.5	1659.5	2.5	5.0	2.0		
	2800	OTTA	1	1723.2	1725	3.8	4.6	2.3		
	2700	PENN	1	1723.9	1725.3	5.4	8.4	4.2		
	2695	CANR	21	1723.5	1725	7	5.0	2.0		
	2695	BOUL	21	1724.5	1725.5	7.5	5.0	1.0		
	2800	OTTA	29	1727		23	1.8	0.9		
	18	MCMA	42	1913	2010	130			1	
	18	BOUL	42	1930	2015	115			1	
	3750	TYKW	1	2303.5	2304.1	2	3.0	1.0		
	2800	OTTA	1	2303.7	2304	1.3	2.6	1.3		
	2695	BOUL	3	2303.5	2304.5	1.5	4.0	1.0		
	2695	PENT	21	2355	0035	120 D	7.4			
8	1420	BOUL	3	0000	0002.5	10.5	3.0	1.0		
	2695	PENT	1	0001	0002	5	2.8	1.4		
	2695	BOUL	3	0001.5	0002.5	3	5.0	2.0		
	100	HIRA	6	0013	0015.2	5	30.0	10.0		
	100	HIRA	45	0018.5	0021.8U	7	350.0	80.0		
	3750	TYKW	20	0027	0035	35	4.0	2.0		
	3750	TYKW	1	0040	0040.8	2	5.0	2.0		

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	2810 OTTA	1	0040.4	0040.9	1	3.0	1.5		
	2695 BOUL	8	0040.5	0041	1.5	6.0	2.0		
	3750 TYKW	20	0105	0108	15	2.0	1.0		
	2695 MANI	1	0244.8	0245.8	2.5	9.5	4.1		
	9400 TYKW	1	0245	0245.8	2	3.0	1.0		
	4995 MANI	3	0245.2	0245.8	2.1	20.7	9.7		
	4995 CRON	8	0245	0245.5	2	22.0	6.0		
	3750 TYKW	1	0245	0245.8	2	33.0	14.0		
	2695 CRON	3	0245	0245.5	2.5	10.0	3.0		
	3750 TYKW	29	0247		30	4.0	2.0		
	3750 TYKW	1	0311.3	0311.8	1	3.0	1.0		
	3750 TYKW	1	0337.3	0337.9	1.5	3.0	1.0		
	3750 TYKW	20	0425	0438	30	5.0	2.0		
	9400 TYKW	20	0430	0438	20	2.0	1.0		
	2695 CRON	21	0639	0641.5	8.5	6.0	2.0		
	4995 CRON	8	0730.5	0731.5	1.5	15.0	7.0		
	4995 CANR	8	0730.5	0731	1	16.0	7.0		
	1420 CANR	8	0730.5	0731.5	3	10.0	3.0		
	9500 BERL	3	0731.5	0731.7	54 U	38.0	2.7		
	9400 SLOU	3	0731.8	0732	1	48.0			
	9400 TYKW	3	0731.3	0731.8	1	44.0	10.0		
	9100 GORK	3	0731.6	0732	1.7	46.0	11.0		
	8800 MANI	3	0731.5	0731.8	1.9	48.4	24.2		
	4995 MANI	3	0731.4	0731.8	2	20.8	10.4		
	3750 TYKW	3	0731.3	0731.8	1	14.0	4.0		
	2695 MANI	3	0731.4	0731.8	2	11.6	5.8		
	2695 CANR	21	0731.5	0732	8	13.0	4.0		
	2695 CRON	8	0731	0731.5	2	13.0	5.0		
	2000 TYKW	3	0731.5	0731.9	2.5	13.0	4.0		
	1500 BERL	3	0731.5	0731.9	4	10.0	3.1		
	1420 CRON	8	0731.5	0732	5.5	11.0	5.0		
	1420 ARCE	2	0731.6	0732.1	3.5				
	1415 MANI	3	0731.6	0731.9	1.7	10.1	5.1		
	1000 TYKW	45	0731.5	0732.5	1.5	45.0	14.0		
	4995 CANR	8	1016.5	1017.5	3	12.0	5.0		
	1420 CANR	8	1017	1018	2.5	6.0	3.0		
	9500 BERL	1	1018 E	1018		5.8			
	4995 CANR	3	1030.5	1032	2.5	7.0	3.0		
	2800 OTTA	21	1323	1334	80	4.6	2.3		
	2695 CANR	45	1324.5	1327.5	6.5	5.0	2.0		
	4995 CANR	8	1325.5	1327	2.5	7.0	3.0		
	2700 PENN	20	1325.9	1327.8	48	14.2	4.1		
	1420 CANR	21	1325.5	1327.5	21	7.0	2.0		
	9500 BERL	20	1326.7	1334.5	33	5.7	2.7		
	7000 SADP	8	1326.4	1327	.8	5.8	2.9		
	2800 OTTA	1	1326.5	1327.7	4.5	7.6	3.8		
	2695 SGMR	20	1326	1327.6	13.9	12.0	5.0		
	1500 BERL	1	1326.3	1327.5	15	3.0	1.0		
	4995 BOUL	45	1327	1327.5	3.5	12.0	3.0		
	2695 BOUL	3	1327.5	1328	1.5	4.0	1.0		
	1420 BOUL	3	1327	1328	1.5	2.0	1.0		
	930 BORD	45	1328	1328	1	30.0	2.0		
	2800 OTTA	1	1425	1426	8.5	4.4	2.2		
	2700 PENN	1	1425.6	1426.3	9.5	8.0	3.0		
	1420 CANR	1	1425.5	1426	6	4.0	1.0		
	2695 BOUL	3	1426	1426.5	1.5	3.0	1.0		
	2800 OTTA	20	1450	1520	150	2.0	1.3		
	2800 OTTA	20	1740	1743	10	1.4	0.7		
	2800 OTTA	20	1833	1835	140	2.6	1.6		
9	9400 TYKW	1	0219	0220	5	6.0	2.0		
	3750 TYKW	1	0219	0219.4	4	3.0	1.0		
	237 TRST	41	1024	1024.5	.8	290.0			
	225 HARS	45	1024	1024	1	75.0	25.0		
	2800 OTTA	20	1503	1505	30	2.8	1.4		
	245 SGMR	6	1600.9	1601.2	1.6	23.3	8.8		
	245 SGMR	6	1608.6	1608.7	.6	1.5	.8		
	245 SGMR	6	1623.2	1623.8	1.5	79.0	32.0		
	237 TRST	41	1623.1	1623.6	1.2	150.0			
	225 HARS	45	1623.5	1624	1	35.0	10.0		
	245 SGMR	6	1816.4	1817	1.2	10.8	4.8		
	2800 OTTA	20	1930	2030	85	2.4	1.2		
	18 MCMA	42	2002	2007	34			2	
	18 MCMA	6	2053	2054	2			1	
	2695 PENT	20	2310	0040	165 D	8.0			
10	3750 TYKW	20	0005	0035	90	4.0	2.0		
	9400 TYKW	3	0032	0032.5	2	18.0	7.0		
	3750 TYKW	1	0032	0032.5	1.5	7.0	3.0		
	2000 TYKW	45	0513	0515.4	5	33.0	8.0		
	1420 CRON	8	0513	0516	5.5	47.0	17.0		
	2695 CRON	3	0514	0515	3.5	10.0	3.0		
	1000 TYKW	45	0514.5	0515.4	4	51.0	15.0		
	9500 BERL	20	0711.5	0718	24	7.9	2.6		
	1500 BERL	4	0712.7	0718	13	31.0	11.0		
	3100 CRIM	1	0713	0725	12	3.0	1.0		
	2695 CRON	40	0715	0718.5	6	29.0	4.0		
	1420 CRON	3	0715.5	0718.5	12	35.0	11.0		
	2695 CANR	45	0716.5	0719	5.5	31.0	5.0		
	2000 TYKW	45	0716	0717.3	7	275.0	30.0		

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	1420 CANR	40	0716	0719	9	35.0	11.0		
	1420 ARCE	40	0716.4	0718	7				
	1000 TYKW	45	0716	0718	6	28.0	7.0		
	3750 TYKW	45	0717	0717.8	2	74.0	9.0		
	3100 CRIM	3	0820	0827	120	8.0	3.0		
	9500 BERL	20	0822.5	0834.3	119	12.0	3.1		
	2695 CANR	3	0823.5	0827.5	9	7.0	2.0		
	1500 BERL	20	0825	0830.3	10	1.8	0.6		
	2695 CANR	21	1515.5	1519	12	5.0	1.0		
	1500 BERL	20	1515.5	1519.2	9.5	4.4	1.4		
	2800 OTTA	20	1516	1519	95	3.8	1.9		
	1420 CANR	3	1516.5	1519.5	7.5	4.0	2.0		
	2695 SGNR	20	1517	1519.1	11.5	3.0	1.9		
	1415 SGNR	1	1517.8	1519.1	8.9	3.2	1.6		
	2695 BOUL	3	1518	1519.5	3	3.0	1.0		
	1420 BOUL	3	1518	1519	3	2.0	1.0		
	2800 OTTA	20	1800	1840	60 D	3.6			
11	930 BORD	45	0857	0858.1	2	12.0	2.0		
	2695 CANR	3	0900	0901.5	3.5	5.0	2.0		
	2800 OTTA	20	1150	1315	110 D	3.2			
	2800 OTTA	21	1340	1410	310	13.6	6.2		
	2700 PENN	20	1347.6	1358.8	90 D	19.0			
	1420 ARCE	23	1347	1422	84				
	1500 BERL	46	1352	1402	25	20.0			
	930 BORD	45	1353	1402.8	22	167.0	6.0		
	9500 BERL	20	1354	1435	91	13.0	5.2		
	2695 BOUL	45	1355.5	1409	49.5	12.0	4.0		
	1420 BOUL	41	1355.5	1402.5	21.5	17.0	3.0		
	2800 OTTA	45	1356	1359	7	6.4	3.2		
	2695 CANR	45	1358.5	1401.5	5	6.0	2.0		
	1420 CANR	45	1358.5	1402.5	22	21.0	5.0		
	960 PENN	45	1358	1408.9	16	37.8			
	550 KIEV	6	1400.9	1408.2	10.8	119.0			
	1420 ARCE	4	1401.5	1402.4	2.3				
	2695 CANR	3	1406.5	1409	4.5	2.0	1.0		
	550 KIEV	24	1426.3	1436.3	22.5	68.0			
	2800 OTTA	20	1930	2030	255	4.2	2.1		
	100 HIRA	6	2332.6	2333.4	2	100.0	25.0		
12	225 HARS	45	0534	0534	1	45.0	15.0		
	237 TRST	42	0813.7	0814.3	3.8	160.0			
	536 ONDR	8	0814	0814	1	145.0			
	30 UPIC	45	1129	1129.5	1				
	2800 OTTA	24	2018		30	1.9			
	1420 BOUL	4	2048	2049	2	13.0	4.0		
13	184 BOUL	49	1259	1321	177			3	
	2800 OTTA	21	1555	1635	125	3.6	1.8		
	4995 CANR	45	1558.5	1603	17.5	15.0	5.0		
	2700 PENN	20	1558.7	1605.5	80	8.2			
	2695 CANR	45	1600.5	1604.5	11	5.0	2.0		
	1420 BOUL	45	1600.5	1604	17	7.0	1.0		
	1415 SGNR	20	1600.6	1603.4	12.5	7.5	1.5		
	960 PENN	45	1600 E	1603.3	3 D	7.6			
	2800 OTTA	22	1601	1604	12	5.4	2.7		
	4995 SGNR	20	1602.6	1605.8	13.8	6.6	1.3		
	2695 BOUL	45	1602	1604	15.5	10.0	3.0		
	2695 SGNR	20	1602.5	1603.1	10.6	8.0	1.6		
	606 SGNR	1	1602.7	1604.5	4.4	1.6	.3		
	930 BORD	45	1603	1604.5	4	11.0	2.0		
	18 HCMA	6	1607	1608	4			1	
	18 BOUL	6	1607	1608	4			1	
	2800 OTTA	24	1955		25	2.0			
	2695 BOUL	45	2354.5	0003	14	14.0	4.0		
	3750 TYKW	45	2355	2402.8	12	11.0	5.0		
	2695 PENT	46	2355	0003	11	14.4	6.5		
	2695 PENT	46	2355	2359.2	6	8.4			
	2000 TYKW	45	2355	2402.8	15	8.0	2.0		
	4995 BOUL	45	2357.5	0002	24.5	13.0	4.0		
	1420 BOUL	40	2358	0009	16	23.0	3.0		
	1000 TYKW	45	2359	0001.7	14	13.0	3.0		
14	4995 CRON	3	0000.5	0002	3.5	9.0	2.0		
	2695 CRON	45	0000	0002	2.5	11.0	3.0		
	2695 PENT	46	0001	0003	5	14.4			
	1420 CRON	45	0005.5	0008.5	6.5	28.0	8.0		
	2695 PENT	29	0006		65	5.6	2.6		
	3750 TYKW	29	0007		40	4.0	2.0		
	2800 OTTA	24	1100		50	3.6			
	9285 ARCE	20	1118.5	1138.4	58.5				
	3100 CRIM	1	1200	1220	35	7.0	2.0		
	2800 OTTA	20	1310	1330	45	2.0	1.0		
	2800 OTTA	20	1710	1730	40	1.2	0.6		
	2800 OTTA	20	1800	1805	40	1.8	0.9		
	2800 OTTA	21	1955	1958	235	3.2	2.8		
	2695 SGNR	22	1955.4	2009.7	35.6	13.4	6.7		
	2800 OTTA	46	2002.5	2009.7	21	9.6	3.8		
	1415 SGNR	22	2002.4	2009.8	32.4	14.5	7.2		
	2695 BOUL	45	2003	2009	14	10.0	3.0		

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JUL 1972	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
	9400	HUAN	20	2004.3	2009.4	42.1	18.3	6.5		
	8800	SGMR	20	2005.3	2009.6	23.5	16.6	8.3		
	4995	SGMR	20	2006.2	2009.6	20.6	9.9	4.9		
	1420	BOUL	45	2006.5	2010	8	9.0	3.0		
	4995	BOUL	45	2008.5	2009.5	3.5	9.0	3.0		
	606	SGMR	40	2008.5	2008.9	4.2	3.0	1.5		
	18	MCNA	6	2134	2135	2			1	
15	4995	MANI	3	0251.4	0254.9	11.9	140.0	15.6		
	2695	MANI	3	0251.4	0255	10.4	36.3	11.7		
	8800	MANI	3	0253.4	0254.9	9.8	109.0	11.1		
	4995	CRON	8	0253	0254.5	3.5	104.0	39.0		
	2695	CRON	8	0253	0254.5	4	21.0	8.0		
	9750	IRKU	3	0254	0254.9	2.5	69.0	11.2		
	3750	TYKW	3	0254	0255	4	80.0	14.0		
	2000	TYKW	1	0254	0255	3	3.0	1.0		
	3750	TYKW	29	0258		40	4.0	2.0		
	225	HARS	45	0409.5	0411	3	70.0	30.0		
	200	HIRA	6	0409.5	0410	2.5	60.0	10.0		
	100	HIRA	6	0409.5	0410.3	2.5	80.0	40.0		
	23	POTS	45	0409.6	0410.4	2.6	3000.0	750.0		
	100	HIRA	6	0418.7	0421.8U	4	45.0U	15.0U		
	237	TRST	5	0917.7	0917.8	.1	270.0	90.0		
	536	ONDR	8	1118	1118	.5	85.0			
	9500	BERL	4	1124.5	1125.7	5.5	69.0	8.0		
	15400	SGMR	3	1125.3	1125.8	2.8	83.0	18.0		
	9400	SLOU	3	1125.9	1126	3.8	102.0			
	9285	ARCE	3	1125.7	1126	3.6				
	8800	SGMR	3	1125.2	1126	6.4	74.0	17.0		
	4995	SGMR	3	1125.5	1125.7	4.6	12.0	2.5		
	4995	CANR	8	1125	1125.5	1.5	12.0	5.0		
	19000	SLOU	3	1126	1126.1	.3	27.0			
	237	TRST	41	1127.9	1128.2	.4	50.0			
	9285	ARCE	22	1222.8	1228.2	27				
	9500	BERL	1	1227.3	1228.2	2.5	6.7	2.0		
	7000	SAOP	2	1227.4	1228.2	2.6	5.8	2.9		
	4995	SGMR	1	1227.9	1228	9.1	6.0	1.5		
	4995	CANR	8	1227	1227.5	1	10.0	4.0		
	2800	OTTA	1	1227.9	1228	1	8.4	4.2		
	2695	CANR	8	1227	1228	2	8.0	3.0		
	2695	SGMR	1	1227.6	1228	6.5	7.4	1.8		
	1500	BERL	1	1227.8	1228.1	1.2	2.2	0.8		
	1420	CANR	8	1227.5	1228.5	1.5	4.0	2.0		
	1415	SGMR	1	1227.8	1228.3	1.4	.9	.2		
	606	SGMR	1	1227.6	1228.4	4.9	5.5	1.4		
	410	SGMR	6	1227.6	1228.3	1.4	140.0	35.0		
	408	TRST	41	1227.8	1228.2	1	240.0			
	245	SGMR	6	1227.8	1228.1	.8	14.0	3.5		
	1420	ARCE	1	1228	1228.1	.7				
	15400	SGMR	3	1706.3	1706.5	1	10.6	4.2		
	8800	SGMR	1	1706.3	1706.6	3.8	7.4	3.7		
	4995	SGMR	1	1706.4	1706.6	1.5	3.4	1.7		
	2800	OTTA	1	1706.3	1706.5	2	2.0	0.8		
	2800	OTTA	8	1706.7	1706.7		7.4			
	2700	PENN	45	1706.4	1707.4	2	10.5	2.3		
	2695	SGMR	2	1706.1	1706.7	8.9	7.4	3.7		
	2800	OTTA	8	1707.3	1707.3		7.2			
	2800	OTTA	40	1930	1930.2	2	1.0			
	9400	HUAN	20	2012.2	2025.6	19.2	11.0	3.9		
	9400	HUAN	20	2041.9	2047.8	15.3	12.8	4.7		
	8800	SGMR	3	2047.5	2049	11.5	14.8	6.2		
	4995	SGMR	1	2047.8	2048.9	7.2	6.2	3.1		
	4995	BOUL	3	2047.5	2048.5	2	8.0	2.0		
	2695	SGMR	20	2047.5	2048.9	27	7.6	3.8		
	606	SGMR	1	2047.9	2048.9	1.4	7.4	3.7		
	10700	PENN	1	2048.3	2049	2	9.2	1.8		
	2800	OTTA	1	2048	2049	1.5	4.8	2.2		
	2700	PENN	3	2048.3	2049	4.7	10.5	1.5		
	2695	BOUL	21	2048.5	2049	4.5	6.0	1.0		
	2800	OTTA	29	2049.5		17	1.4	0.7		
	960	PENN	8	2049.7	2049.8	.2	19.0			
16	9285	ARCE	23	1245.9	1252.2	30				
	9285	ARCE	45	1300	1300.9	1.3				
	2800	OTTA	1	1355.5	1356	2.5	3.0	1.5		
	2700	PENN	1	1355.2	1356.2	3	4.9	2.0		
	2695	BOUL	3	1355	1356	2.5	3.0	1.0		
	2695	CANR	3	1355	1356	2.5	4.0	1.0		
17	237	TRST	41	0910.6	0910.8	.8	730.0			
	234	POTS	8	0910.8	0910.8	.1	175.0	60.0		
	930	BORD	3	1107	1112.8	10	14.0	4.0		
	237	TRST	42	1209.6	1212.9	3.8	760.0			
	410	SGMR	6	1211.6	1212.7	1.7	60.0	12.0		
	245	SGMR	6	1211.7	1212.7	1.7	290.0	110.0		
	1500	BERL	2	1212	1212.8	2	4.9	1.1		
	1415	SGMR	1	1212.9	1213	1.2	4.0	2.0		
	606	SGMR	1	1212.5	1213.1	1.1	8.8	4.0		
	408	TRST	45	1212.8	1213.1	.6	110.0	30.0		
	9500	BERL	20	1213.8E	1213.8		5.2			

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JUL 1972	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
	536	ONDR	3	1213.5	1213.5	2	45.0			
	7000	SAOP	2	1422.8	1424.5	4	6.5	5.3		
	237	TRST	5	1445.8	1445.9	.1	50.0	20.0		
	2800	OTTA	20	1500	1505	250	2.2	1.1		
	237	TRST	45	1500.4	1500.5	.3	130.0	40.0		
	18	MCMA	41	1544	1549	6			1	
	18	MCMA	41	1611	1620	10			1	
	3750	TYKW	1	2257	2257.3	3	3.0	1.0		
	1420	BOUL	3	2312	2313	1.5	2.0	1.0		
18	100	HIRA	27	0235	0248	28	12.0	6.0		
	9400	TYKW	45	0315.8	0316.1	6	15.0	7.0		
	3750	TYKW	45	0315.7	0316.1	6	5.0	2.0		
	113	POTS	45	1052	1052.1	.1	200.0	40.0		
	245	SGMR	6	1136.7	1141.6	6.9	7.0	1.6		
	202	IZMI	41	1139	1144	5	75.0			
	113	POTS	8	1140.8	1140.8	.2	800.0	250.0		
	2800	OTTA	20	1330	1450	195	2.2	1.1		
	18	MCMA	42	2039	2113	98			3	
19	200	GORK	6	0331.6	0332	.9	60.0			
	100	GORK	6	0331.6	0331.8	.8	100.0D			
	100	HIRA	6	0331.5	0331.7	1	120.0	40.0		
	100	HIRA	27	0343	0348	17	13.0	7.0		
	200	GORK	44	0353		120		5.0		
	1000	TYKW	45	0410	0415.7	26	11.0	5.0		
	100	GORK	41	0419.2	0420.1	5.1	40.0			
	100	GORK		0419.2	0422.8		20.0			
	200	GORK	41	0830.7	0831	4.6	150.0			
	200	GORK		0830.7	0833.7		25.0			
	100	GORK	6	0833.6	0833.7	.4	40.0			
	200	GORK	44	0936		42		10.0		
	100	GORK	41	0954.3	0957.6	5.6	60.0			
	100	GORK		0954.3	0959.4		70.0			
	2800	OTTA	20	1225	1228	15	1.0	0.5		
	245	SGMR	43	1330	1801.2	760 D	110.0			
	184	BOUL	41	1443	1446	17			1	
	184	BOUL	42	1530	1555	195			2	
	18	MCMA	42	1611	1622	58			1	
	18	MCMA	41	1900	1904	7			1	
	18	BOUL	6	1918	1921	4			1	
	100	HIRA	6	2110.5	2111.4	2	80.0	20.0		
	184	BOUL	41	2111	2112	3			2	
	18	MCMA	6	2111	2113	4			1	
	18	BOUL	6	2111	2114	5			1	
	100	HIRA	6	2215.5	2216.7	2	100.0	15.0		
	18	MCMA	6	2215	2218	4			1	
	18	BOUL	6	2215	2218	4			1	
	9400	TYKW	1	2216	2217	2	3.0	1.0		
	3750	TYKW	1	2216.3	2216.8	2	2.0	1.0		
	2800	OTTA	1	2216.3	2216.7	1	1.6	0.8		
	2695	BOUL	8	2216.5	2217	1.5	10.0	3.0		
	2000	TYKW	3	2216.3	2216.8	1	36.0	12.0		
	1000	TYKW	3	2216.3	2216.7	1.5	31.0	8.0		
	1420	BOUL	8	2217	2217.5	1.5	29.0	9.0		
	184	BOUL	41	2357	0003	19			2	
20	100	GORK	44	0257 E		73		5.0		
	18	MCMA	41	1436	1446	11			1	
	2800	OTTA	20	1605	1640	70	1.8	0.9		
21	1000	TYKW	45	0226	0234	12	4.0	1.0		
	950	GORK	1	0634	0634.2	.3	4.0	2.0		
	650	GORK	3	0634	0634.1	.3	6.2	3.0		
	1000	TYKW	45	0701	0703	4	5.0	2.0		
	1000	TYKW	45	0720	0725.1	8	14.0	4.0		
	950	GORK	1	0830.1	0830.3	.4	1.5	0.7		
	650	GORK	1	0830.2	0830.4	.4	3.5	1.7		
	3100	CRIM	1	0910	0924	45	5.0	2.0		
	950	GORK	1	0922.6	0922.9	.9	3.3	1.6		
	650	GORK	1	0922.5	0923.1	1.5	3.3	1.5		
	536	ONDR	3	0922.5	0922.5	2	50.0			
	237	TRST	42	0922.4	0922.9	1.5	310.0			
	200	GORK	6	0922.7	0923.1	1.6	150.0			
	2800	OTTA	21	1050	1115	45	3.8	1.9		
	237	TRST	42	1113.4	1115.1	2	130.0			
	2800	OTTA	8	1115	1115		3.8			
	2800	OTTA	20	1315	1330	35	2.0	1.0		
	536	ONDR	45	1321.5	1323	4	110.0			
	536	ONDR	3	1506	1506	1.5	50.0			
	2800	OTTA	20	1600	1608	55	1.6	0.8		
	2800	OTTA	21	2050	2055	30	3.0	1.5		
	2800	OTTA	1	2058	2058.3	1	2.0	1.0		
	2800	OTTA	1	2104.2	2105	2	2.0	1.0		
	2800	OTTA	1	2107.7	2108	1.5	2.6	1.3		
	2700	PENN	1	2107.2	2108.2	4	4.4	1.2		
	2695	BOUL	3	2107.5	2108.5	2	4.0	1.0		
	1420	BOUL	3	2107.5	2108.5	1.5	2.0	1.0		
22	245	BOUL	41	0038	0041	8			3	

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JUL 1972	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
	2695	CROM	3	0338.5	0347.5	20.5	4.0	1.0		
	1420	CROM	3	0339.5	0349.5	26.5	8.0	2.0		
	100	HIRA	6	0340	0341.2	11	140.0	25.0		
	3750	TYKW	20	0342	0350	30	3.0	1.0		
	2000	TYKW	20	0342	0349	30	6.0	2.0		
	1000	TYKW	20	0342	0350	15 D	12.0	7.0U		
	606	MANI	20	0343	0349.3	19.5	9.5	3.7		
	1415	MANI	20	0345.9	0348.7	15.1	5.8	1.9		
	2695	CROM	3	0550	0552	3.5	4.0	1.0		
	1420	CROM	3	0551	0553	3.5	4.0	1.0		
	113	POTS	45	0552.5	0552.6	.7	150.0	40.0		
	100	HIRA	6	0552.4	0552.9	1.2	130.0	40.0		
	23	POTS	45	0552.2	0553.1	2	10000.0	2000.0		
	1420	CANR	4	1022	1027	9.5	16.0	4.0		
	2695	CANR	3	1024.5	1027	6	3.0	1.0		
	1500	BERL	4	1025	1027	5 U	13.0	2.0		
	930	BORD	45	1025	1027.7	6	19.0	3.0		
	23	POTS	45	1035.5	1035.5	.5	5000.0U	1000.0U		
	2695	CANR	3	1126.5	1129	8.5	4.0	1.0		
	2800	OTTA	1	1127.5	1129.7	6	4.2	2.1		
	930	BORD	45	1128	1129.2	5	26.0	2.0		
	2800	OTTA	24	1450		20	2.0			
	2800	OTTA	20	1518	1523	30	1.0	0.5		
	2800	OTTA	1	2148	2148.5	2	3.8	1.0		
	2000	TYKW	45	2148	2148.5	4	12.0	2.0		
	1420	BOUL	21	2148.5	2150	35	3.0	1.0		
	2695	BOUL	21	2149	2149.5	9.5	7.0	1.0		
23	200	GORK	6	0341.8	0342.1	.6	10.0			
	100	GORK	6	0341.2	0342 U	1.8	100.0D			
	100	HIRA	6	0341.5	0342.1	1.5	180.0	60.0		
	536	ONDR	8	0619	0619	.5	70.0			
	536	ONDR	8	0701	0701	.5	45.0			
	23	POTS	45	0815.1	0815.6	.6	10000.0	2500.0		
	100	GORK	6	0816.9	0817.3	.9	100.0			
24	100	GORK	6	0322.8	0323.6	1.7	70.0			
	200	GORK	6	0323.2	0323.6	.9	10.0			
	100	HIRA	6	0323	0323.7	1.5	70.0	20.0		
	3100	CRIM	24	1100	1120		4.0			
	2800	OTTA	20	1100	1140	120	2.8	1.4		
	536	ONDR	3	1252	1252	2	315.0D			
	536	ONDR	3	1408.5	1408.5	2	80.0			
	2700	PENN	41	1605.8	1609.8	4.1	69.2			
	18	MCMA	42	1648	1650	16			1	
	2695	PENT	1	2331.5	2332	1	1.8	0.9		
25	100	HIRA	5	0006.1	0006.2	.3	800.0			
	100	HIRA	6	0012.8	0013.2	1.3	1000.0D	700.0D		
	208	VORO	6	0016	0016.1	1.2	49.4	30.0		
	100	HIRA	6	0233.8	0234	.5	65.0	30.0		
	100	HIRA	6	0236.2	0236.5	.7	90.0	40.0		
	100	HIRA	6	0246.2	0246.4	.5	160.0	40.0		
	100	HIRA	6	0256.4	0256.6	.6	170.0	60.0		
	2695	BOUL	3	1333	1334	2.5	3.0	1.0		
	9400	HUAN	22	1420.7	1442.2	39.9	18.0	3.6		
	18	BOUL	6	1807	1810	4			2	
	18	MCMA	6	1809	1812	3			2	
	245	BOUL	41	2156	2241	122			2	
26	100	HIRA	6	0014	0014.2	.8	1000.0D	500.0D		
	100	HIRA	6	0015.4	0015.8	1	500.0	200.0		
	113	POTS	41	0511.9	0512	1.1	200.0	7.0		
	113	POTS	45	0633.8	0634.2	2.1	600.0	50.0		
	100	HIRA	6	0642.2	0642.5	.5	180.0	100.0		
	536	ONDR	8	0657.5	0657.5	1	45.0			
	950	GORK	1	0719.7	0719.9	.4	2.6	1.3		
	650	GORK	1	0719.7	0719.8	.4	2.2	1.1		
	113	POTS	45	0931	0931.3	.8	100.0	20.0		
	536	ONDR	8	1018	1018	.5	50.0			
	1500	BERL	22	1425.5	1427.7	4.8	3.0	0.9		
	1420	CANR	21	1425	1428	7.5	5.0	1.0		
	2800	OTTA	24	1426		2	2.0			
	2800	OTTA	8	1426.5	1426.5		4.2			
	2800	OTTA	8	1427	1427		2.8			
	18	MCMA	6	2014	2015	4			1	
	18	BOUL	6	2014	2017	4			2	
	100	HIRA	6	2316.3	2316.4	1.5	90.0	30.0		
27	9400	TYKW	20	0248	0307	45	4.0	2.0		
	3750	TYKW	20	0248	0307	45	4.0	2.0		
	100	HIRA	6	0416.6	0416.8	.4	450.0	120.0		
	100	HIRA	6	0510.8	0510.9	.7	130.0	10.0		
	100	HIRA	6	0512.8	0512.9	.7	120.0	30.0		
	3750	TYKW	20	0521	0529	40	5.0	2.0		
	9400	TYKW	20	0522	0529	40	14.0	6.0		
	100	GORK	41	0631.9	0634.6	13	500.0			
	100	GORK		0631.9	0640.4		50.0			
	100	GORK		0631.9	0643.6		90.0D			
	2695	CROM	3	0632.5	0634	2	3.0	1.0		

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JUL 1972	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
	950	GORK	1	0632.5	0635.3	4.6	2.2	1.1		
	200	GORK	41	0632.8	0634.3	11.5	70.0			
	200	GORK		0632.8	0639.6		60.0			
	200	GORK		0632.8	0643.1		50.0			
	100	HIRA	6	0632.5	0634.1	3.5	115.0	40.0		
	3750	TYKW	20	0633	0645	50	5.0	2.0		
	1420	CRON	3	0633.5	0634.5	2.5	4.0	1.0		
	9400	TYKW	45	0634	0648.8	25	23.0	7.0		
	950	GORK	1	0642.6	0643.5	2.2	1.2	0.6		
	536	ONDR	3	0745	0745	2	65.0			
	1420	ARCE	40	0756.1	0814.1	44				
	950	GORK	1	0849.5	0849.7	.9	1.2	0.6		
	100	HIRA	6	0929.8	0931.2	2.5	100.0	30.0		
	100	GORK	6	0930.2	0931.6	2.4	1000.0			
	950	GORK	2	0931.4	0931.7	.7	3.4	1.7		
	202	IZMI	6	0931	0931.5	2	13.0	6.0		
	200	GORK	6	0931	0931.8	1.2	60.0			
	536	ONDR	3	1206	1206	1.5	90.0U			
	2800	OTTA	20	2105	2110	65	1.8	0.9		
28	208	VORO	6	0035.5	0036	1	25.4	12.0		
	2695	CRON	8	0121.5	0122.5	2	14.0	4.0		
	9400	TYKW	20	0122	0125	12	8.0	3.0		
	3750	TYKW	1	0122	0123.3	6	5.0	2.0		
	2695	BOUL	8	0122	0124	6	18.0	4.0		
	2695	PENT	3	0122.5	0123.3	2.5	19.0	3.4		
	2695	MANI	3	0122.8	0124.4	2.2	13.8	3.4		
	2000	TYKW	3	0122	0123.3	6	36.0	6.0		
	1420	CRON	8	0122	0123.5	2.5	23.0	9.0		
	1420	BOUL	8	0122.5	0124	3	18.0	6.0		
	1415	MANI	3	0122.8	0124.4	2.6	16.0	7.0		
	1000	TYKW	3	0122	0123.3	3	16.0	5.0		
	606	MANI	1	0122.8	0124.3	2.6	5.4	2.2		
	100	HIRA	6	0122	0122.5	5	140.0	40.0		
	200	HIRA	6	0124	0125.5	3	270.0	40.0		
	2800	OTTA	29	0125		5	2.0	1.0		
	9100	GORK	20	0300.5	0306	17.8	18.0	9.0		
	100	GORK	44	0825		41		5.0		
	7000	SAOP	4	1249.2	1249.4	5.6	6.1	3.1		
	2800	OTTA	21	1305	1535	330	3.8	2.2		
	9285	ARCE	40	1320.4U	1324.5	24.2U				
	2830	ARCE	40	1320	1324.5	13.5				
	2800	OTTA	40	1320	1324.5	8.5	27.0			
	2700	PENN	45	1320.4	1324.5	9.6	46.1	7.3		
	2695	SGMR	4	1320.4	1324.4	12.2	25.7	11.8		
	1420	ARCE	40	1320	1324.6	13 U				
	2695	CANR	45	1321.5	1323.5	5.5	27.0	6.0		
	960	PENN	45	1321	1324.2	7.2	36.5	2.9		
	410	SGMR	6	1321.6	1321.7	8.4	11.2	4.4		
	245	SGMR	6	1321.5	1324.6	9.7	124.0	48.2		
	237	TRST	42	1321.7	1324.6	6.7	780.0			
	237	TRST		1321.7	1327.1		450.0			
	18	MCMA	6	1321	1325	7			2	
	10700	PENN	3	1322	1324.5	8.2	12.7	2.5		
	9500	BERL	22	1322.7	1324.6	11.3	11.0	3.4		
	9400	HUAN	22	1322.5	1327.8	52.2	9.6	5.7		
	7000	SAOP	46	1322.8	1324.7	2.7	23.5	7.1		
	4995	CANR	4	1322	1323.5	2	28.0	11.0		
	1500	BERL	46	1322.3	1324.5	10	13.0	1.9		
	1420	CANR	45	1322.5	1324	5.5	14.0	4.0		
	1415	SGMR	4	1322.5	1324.5	7.3	13.8	4.9		
	930	BORD	45	1322	1324.2	6	74.0	4.0		
	606	SGMR	40	1322	1322.3	7.4	14.9	6.0		
	536	ONDR	45	1322	1322	6.5	50.0			
	30	UPIC	45	1322	1324	6.5				
	23	POTS	45	1322.5	1322.8	1.2	5000.0U	500.0U		
	15400	SGMR	5	1323.3	1325.9	6.5	15.4	6.2		
	8800	SGMR	40	1323.3	1324.6	7.3	15.2	6.1		
	4995	BOUL	4	1323	1324	2	36.0	14.0		
	4995	SGMR	4	1323	1324.4	6.8	31.6	12.9		
	2695	BOUL	45	1323	1325	6	26.0	5.0		
	1420	BOUL	4	1323.5	1325	2.5	14.0	5.0		
	7000	SAOP	29	1325.5		6.9				
	4995	CANR	3	1326.5	1327	1.5	5.0	2.0		
	225	HARS	45	1327	1328	3	40.0	6.0		
	536	ONDR	8	1347	1347	1	50.0			
	410	SGMR	6	1352.6	1353.1U	1.4U	22.4U	8.5U		
	245	SGMR	6	1352.4	1352.7U	1.6U	66.0U	26.2U		
	237	TRST	41	1352.7	1352.9	1.9	170.0			
	113	POTS	45	1352.5	1353.2	1.4	300.0	60.0		
	23	POTS	45	1352.6	1353.2	2.1	12000.0	3000.0		
	225	HARS	45	1353	1354	2	50.0	10.0		
	30	UPIC	45	1353		2				
	18	MCMA	6	1353	1355	4			2	
	9400	HUAN	20	1519.2	1528.6	23.6	13.5	2.1		
	245	SGMR	6	1530.9	1531.4	.9	11.3	3.0		
	18	MCMA	6	1531	1533	3			1	
	10700	PENN	1	1544.5	1545.1	4.3	8.5	1.8		
	2800	OTTA	20	1730	1740	25	1.6	0.8		
	4995	CANR	3	1856.5	1858	2	7.0	2.0		

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JUL. 1972	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
	2695	CANR	3	1857	1858.5	2.5	6.0	3.0		
	1420	CANR	3	1857	1858.5	2.5	3.0	1.0		
	18	MCMA	41	1857	1858	5			1	
	18	MCMA	6	1943	1945	3			1	
	18	BOUL	41	1944	1945	5			2	
	18	MCMA	6	2016	2017	2			1	
	18	BOUL	41	2039	2042	7			1	
	2800	OTTA	21	2040	2047	30	1.6	0.8		
	18	MCMA	41	2041	2043	6			1	
	2800	OTTA	1	2042.5	2042.9	1	2.0	1.0		
	2800	OTTA	21	2140	2210	80	4.2	2.1		
	2800	OTTA	1	2141	2144.2	5	3.2	1.8		
	9400	HUAN	20	2142.9	2145	8.3	9.6	4.1		
	2800	OTTA	8	2208.8	2208.9	.4	28.0			
	2700	PENN	8	2208.9	2208.9	.2	42.6			
	960	PENN	8	2208.8	2208.9	.2	40.2			
	100	HIRA	6	2208.8	2208.9	1	200.0	60.0		
	100	HIRA	6	2212.7	2213.5	1.5	120.0	20.0		
	9400	TYKW	45	2348	2351.9	6	25.0	8.0		
	3750	TYKW	45	2348	2351.9	6	74.0	5.0		
	9750	IRKU	1	2350.5	2351.7	1.5	17.0	4.0		
	2695	CRON	8	2350.5	2351	1	53.0	26.0		
	8800	MANI	4	2351.7	2352.1	1.2	12.4U	6.2U		
	4995	MANI	3	2351.7	2352	1.2	24.2U	4.4U		
	2695	BOUL	8	2351.5	2353.5	2	53.0	17.0		
	2695	PENT	3	2351.5	2352.1	1	60.0	28.0		
	2695	MANI	4	2351.6	2352.2	1.3	63.0	14.9		
	1420	CRON	8	2351.5	2352	1	11.0	4.0		
	1415	MANI	1	2351.2	2352.2	2	7.4	3.2		
	1000	TYKW	1	2351.5	2351.9	1.5	7.0	2.0		
	606	MANI	1	2351.2	2352	2	4.2	1.2		
	1420	BOUL	8	2352.5	2353	1	8.0	3.0		
29	100	GORK	6	0708.4	0708.5	.4	60.0			
	4995	CANR	3	0732	0732.5	2	7.0	3.0		
	2695	CANR	3	0732.5	0733	2	4.0	1.0		
	1420	CANR	3	0732.5	0733.5	1.5	2.0	1.0		
	100	GORK	41	0756.4	0757.4	3	60.0			
	100	GORK		0756.4	0759.1		60.0D			
	200	GORK	41	0757.2	0757.3	2.4	10.0			
	200	GORK		0757.2	0759.2		15.0			
	200	GORK	42	0812.3	0812.5	21.1	150.0			
	200	GORK		0812.3	0824.1		40.0			
	200	GORK		0812.3	0832.8		20.0			
	100	GORK	6	0812	0812.7	1.8	20.0			
	100	GORK	41	0824	0824.1	9	30.0			
	100	GORK		0824	0832.1		60.0D			
	2695	CANR	3	0921	0923	3.5	9.0	3.0		
	1500	BERL	1	0922.7	0923.7	2.8	2.0	1.0		
	1420	CANR	3	0922.5	0923.5	2	3.0	1.0		
	950	GORK	1	0933.3	0933.3	.1	2.5	1.3		
	650	GORK	1	0933.1	0933.4	.4	7.2	2.4		
	200	GORK	6	0933.1	0933.3	.4	5.0			
	100	GORK	6	0939.3	1000	1 U	40.0			
	2800	OTTA	25	1200		60	4.2			
	23	POTS	8	1223	1223.1	.2	1000.0	300.0		
	2695	CANR	8	1248.5	1248.5	1	12.0	4.0		
	4995	CANR	3	1251.5	1252.5	1	5.0	2.0		
	2800	OTTA	3	1251.9	1252.9	4	12.0	3.0		
	2700	PENN	3	1251.8	1252.9	2.6	20.6	6.3		
	4995	SGMR	1	1252.4	1252.8	3.2	4.9	2.0		
	2695	SGMR	3	1252	1252.8	3	14.3	6.0		
	1500	BERL	2	1252	1252.7	2	1.8	0.8		
	1415	SGMR	1	1252.3	1252.9	1.4	.8	.4		
	536	ONDR	8	1307 E	1307	1	60.0			
	225	HARS	3	1356		3	65.0D			
	536	ONDR	45	1426	1427.5	3	55.0			
	237	TRST	41	1448.4	1448.6	.8	60.0			
	2800	OTTA	20	1505	1535	130	5.8	2.9		
	9400	HUAN	22	1514.6	1556.2	102.7	9.5	4.3		
	2695	SGMR	20	1516	1534.1	37.4	6.6	3.3		
	15400	SGMR	20	1529.2	1536.5	14.5	10.8	5.4		
	1415	SGMR	20	1529.6	1537.1	22.9	1.8	.9		
	8800	SGMR	20	1530.5	1532.5	22.6	6.8	3.4		
	4995	SGMR	20	1531	1534.4	22.6	3.9	2.0		
	18	MCMA	6	1548	1551	5			2	
	245	SGMR	6	1549	1551.1	3.1	16.8	6.2		
	18	BOUL	41	1810	1814	8			2	
	8800	SGMR	20	1811.6	1815	11.5	7.5	3.0		
	4995	CANR	3	1811.5	1812.5	1.5	6.0	2.0		
	2700	PENN	1	1811.9	1813.5	8	8.5	2.6		
	18	MCMA	41	1811	1814	7			2	
	4995	SGMR	22	1812.1	1813.5	10.5	5.6	2.0		
	2800	OTTA	2	1812	1813.3	5	4.4	1.9		
	2695	SGMR	20	1812	1813.5	14.5	3.9	1.5		
	2695	BOUL	45	1812	1814	5	6.0	2.0		
	2695	CANR	45	1812	1815	3.5	5.0	2.0		
	1420	BOUL	45	1812.5	1814	5	4.0	2.0		
	1420	CANR	45	1812	1813	3.5	5.0	2.0		
	1415	SGMR	40	1812.4	1815.2	7.4	2.2	.5		

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JUL. 1972	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
	606	SGMR	20	1812.2	1820.6	22	5.8	2.0		
	245	SGMR	6	1812.6	1821.6	21.6	16.1	3.0		
	960	PENN	1	1813.2	1815.2	5.4	3.0	1.0		
	410	SGMR	6	1817.8	1820.3	16.4	9.5	1.0		
	4995	SGMR	22	1838.7	1900	38.3	8.1	4.0		
	2695	SGMR	23	1838.6	1900.1	52.5	6.8	3.0		
	18	MCMA	41	1838	1846	9			3	
	18	BOUL	41	1838	1845	8			3	
	2800	OTTA	21	1839	1900	145	7.0	3.2		
	2800	OTTA	1	1839.7	1839.9	1	4.0	2.0		
	2700	PENN		1839.8	1844.7	6.4	21.4	2.1		
	2695	BOUL	8	1839.5	1840	1	5.0	2.0		
	1420	BOUL	8	1839.5	1840	1	11.0	3.0		
	1415	SGMR	41	1839.3	1844.6	6.7	26.0	5.0		
	960	PENN	45	1839.2	1844.8	6.5	28.0	1.0		
	410	SGMR	6	1839.2	1841.6	6.3	59.0	8.0		
	245	SGMR	6	1839.2	1841.6	7.4	280.0	40.0		
	225	HARS	45	1839	1840	2	60.0	25.0		
	1420	CANR	8	1840	1840.5	1	13.0	5.0		
	245	BOUL	41	1840	1843	7			2	
	9400	HUAN	20	1841.6	1859.6	75.2	28.4	13.1		
	606	SGMR	40	1841.6	1844.8	4.4	35.7	8.0		
	225	HARS	45	1842	1842	1	65.0	20.0		
	2695	CANR	8	1843.5	1844	1	22.0	10.0		
	2800	OTTA	1	1844	1844.5	2	4.0	2.0		
	2800	OTTA	8	1844.6	1844.6		17.0			
	2695	SGMR	4	1844	1844.6	1.4	20.4	5.0		
	2695	BOUL	8	1844	1845	1.5	10.0	3.0		
	1420	BOUL	8	1844	1845	2	23.0	8.0		
	1420	CANR	8	1844	1844.5	1	29.0	10.0		
	225	HARS	45	1844	1845	4	55.0	35.0		
	8800	SGMR	22	1848.1	1859.4	29.1	23.8	10.0		
	10700	PENN	20	1850.7	1859.6	34.3	20.2	5.9		
	15400	SGMR	20	1851	1859.5	20.6	34.5	12.0		
	2700	PENN	20	1852.1	1859.9	28.3	8.6	3.5		
	245	SGMR	43	1909.8	1933.6	44.8	22.4			
	245	SGMR	6	2159.5	2200.3	1.6	20.0	4.0		
	2800	OTTA	20	2220	2225	25	2.0	1.0		
	10700	PENN	3	2225.8	2228.5	6	11.3	4.9		
30	9100	GORK	20	0225.3	0256.1	45.3	128.0	52.0		
	9750	IRKU	20	0230.5	0231	13	13.5	5.0		
	100	GORK	6	0305.7	0305.9	.4	70.0D			
	100	GORK	41	0326.8	0328.2	8.6	70.0			
	100	GORK		0326.8	0332.8		70.0D			
	100	GORK	41	0416.2	0416.3	4.8	70.0			
	100	GORK		0416.2	0419.9		70.0D			
	2695	CRON		0419	0419.5	1.5	10.0	4.0		
	200	GORK	6	0419.5	0419.9	1.2	80.0			
	113	POTS	45	0419.2	0420.2	1.7	200.0	25.0		
	100	HIRA	6	0419	0420.2	2	120.0	20.0		
	100	GORK	6	0607.7	0607.8	3	40.0			
	237	TRST	41	0659.8	0659.9	.8	110.0			
	536	ONDR	3	0707.5	0707.5	2	50.0			
	606	MANI	41	0709.5	0717.4	11.6	14.5	2.5		
	4995	CANR	3	0711	0711.5	2	9.0	3.0		
	2695	CANR	3	0711	0712	2	6.0	2.0		
	237	TRST	42	0712.7	0716.4	11.7	950.0D			
	237	TRST		0712.7	0719.6		170.0			
	237	TRST		0712.7	0723.8		290.0			
	200	GORK	41	0712.9	0716.5	11.4	300.0D			
	200	GORK		0712.9	0719.9		300.0			
	200	GORK		0712.9	0724.2		300.0			
	234	POTS	41	0715.8	0716.5	8.4	450.0	3.0		
	202	IZMI	41	0715	0715.9	10	200.0			
	113	POTS	41	0715.8	0717.2	8.4	4200.0	80.0		
	100	GORK	41	0715	0716.5U	9.4	60.0D			
	100	GORK		0715	0720.2		200.0			
	100	GORK		0715	0724.2		700.0			
	100	HIRA	6	0715	0717.3	3	200.0	80.0		
	30	UPIC	45	0715.5	0715.5	9.5				
	23	POTS	41	0715.4	0717.3	9.2	8000.0	800.0		
	950	GORK	41	0716.2	0716.4	5.2	2.2			
	950	GORK		0716.2	0717.1		3.4			
	950	GORK		0716.2	0719.7		2.4			
	950	GORK		0716.2	0720.7		2.9			
	225	HARS	45	0716	0717	3	70.0	15.0		
	650	GORK	3	0717	0717.2	.2	22.0	10.7		
	536	ONDR	8	0717.5	0717.5	1	45.0			
	650	GORK	41	0719.4	0720	1.6	2.4			
	650	GORK		0719.4	0720.8		3.6			
	100	HIRA	6	0719.5	0719.7	1	140.0	50.0		
	202	IZMI	6	0835	0836.9	3	20.0	10.0		
	100	GORK	41	0835.7	0837	5.7	60.0			
	100	GORK		0835.7	0840.8		80.0			
	30	UPIC	45	0835.5	0836.5	5				
	200	GORK	6	0836	0836.9	1.5	20.0			
	100	HIRA	6	0836	0836.2	1.5	100.0	40.0		
	100	GORK	41	0853.4	0854.1	1.9	70.0			
	100	GORK		0853.4	0855		40.0			

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JUL. 1972	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
	536	ONDR	8	0928	0928	1	50.0			
	100	GORK	42	0932	0932.5	1.5	40.0			
	202	IZMI	6	1024	1024.2	.3	10.0	5.0		
	245	SGMR	6	1100.9	1101.1	.4	24.0	6.0		
	23	POTS	8	1101.1	1101.2	.6	2000.0	600.0		
	10700	PENN	1	1238.1	1240.2	6.6	8.1	1.0		
	245	SGMR	6	1307.5	1308.1	3.5	6.9	1.5		
	30	UPIC	5	1308	1308.5	1				
	2800	OTTA	21	1310	1325	90	4.4	2.0		
	9400	HUAN	20	1313.7	1323.7	71.2	24.2	8.7		
	7000	SAOP	22	1319.1		19	15.1			
	9285	ARCE	20	1320.5	1325.5	37				
	4995	BOUL	21	1320	1324.5	21.5	9.0	4.0		
	2830	ARCE	20	1320.4	1325.3U	20.5				
	15400	SGMR	3	1321.9	1325.1	6.7	18.0	8.0		
	10700	PENN	1	1321.9	1325.9	9.6	8.1	4.9		
	9500	BERL	22	1321.2	1323.7	39 U	12.0	6.0		
	8800	SGMR	3	1321.3	1324.8	8.4	13.8	5.0		
	4995	CANR	45	1321	1324	9.5	9.0	3.0		
	4995	SGMR	4	1321.5	1324	8.3	11.2	5.0		
	2695	SGMR	2	1321.5	1325.2	6.5	9.3	4.0		
	2695	CANR	21	1321.5	1324.5	9.5	5.0	2.0		
	1500	BERL	20	1321.5U	1324.7	8.5U	1.7	0.7		
	2695	BOUL	3	1323.5	1325	4.5	4.0	1.0		
	2800	OTTA	8	1325	1325.3	1	8.4			
	2800	OTTA	20	1500	1640	140	3.4	1.7		
	9400	HUAN	22	1530.4	1555.6	105.2	11.1	5.6		
	18	MCMA	41	1701	1705	6			1	
	18	BOUL	41	1701	1703	6			1	
	10700	PENN	1	1722.7	1723.2	5.8	6.7	0.7		
	2800	OTTA	32	1815	1912	95	-3.6	-1.8		
	245	SGMR	6	1837.4	1839	5.3	110.0	27.0		
	18	MCMA	6	1837	1840	5			2	
	18	BOUL	6	1837	1840	4			2	
	225	HARS	45	1839	1840	4	70.0	20.0		
	9400	HUAN	20	1846.2	1854.8	18.1	7.4	1.9		
	18	MCMA	6	1857	1859	3			1	
	18	MCMA	6	1934	1935	3			1	
	18	BOUL	6	1934	1936	2			1	
	18	MCMA	42	2019	2028	16			1	
	18	BOUL	42	2019	2034	15			1	
	100	HIRA	6	2027.8	2027.9	1.2	120.0	30.0		
	245	SGMR	6	2032.5	2034.2	2.5	90.0	23.0		
	10700	PENN	3	2238.6	2239	7.4	13.4	2.1		
	9750	IRKU	1	2238	2239	2	4.5	2.0		
	245	SGMR	6	2248.4	2248.8	1.9	41.0	10.0		
	208	VORO	7	2248.4	2248.9	1.5	57.2	28.0		
	9750	IRKU	1	2357	2359.7	3.5	15.0	5.6		
31	9750	IRKU	20	0120.5	0121	12	20.0	5.8		
	3750	TYKW	1	0222	0223	10	3.0	1.0		
	9100	GORK	20	0346.5	0359.9	27	37.0	19.0		
	200	GORK	41	0409.8	0409.9	9.6	80.0			
	200	GORK		0409.8	0416.9		70.0			
	100	GORK	41	0409.6	0409.7	16.5	10.0			
	100	GORK		0409.6	0416.7		50.0			
	100	GORK		0409.6	0425.5		40.0			
	100	GORK	41	0441.6	0441.7	2.4	50.0			
	100	GORK		0441.6	0443.7		20.0			
	9100	GORK	20	0531.3	0535.7	21	13.0	6.0		
	4995	CRON	3	0532	0536	7	9.0	4.0		
	9750	IRKU	1	0553	0554.7	3.5	13.0	8.8		
	100	GORK	6	0611.6	0611.8	1.4	60.0			
	536	ONDR	8	0626.5	0626.5	1	60.0			
	100	GORK	41	0629.2	0629.3	4.6	45.0			
	100	GORK		0629.2	0631.2		40.0			
	100	GORK	41	0642.9	0643.2	3.7	50.0D			
	100	GORK		0642.9	0645.1		50.0			
	200	GORK	6	0644.7	0645.1	1	40.0			
	9100	GORK	20	0658.3	0700.8	8.1	16.0	7.4		
	100	GORK	6	0736.7	0737	.7	50.0			
	200	GORK	6	0812.2	0812.4	.6	15.0			
	100	GORK	6	0812	0812.2	1.2	60.0D			
	100	GORK	41	1028.3	1028.8	22.6	50.0			
	100	GORK		1028.3	1037.3		350.0			
	100	GORK		1028.3	1047		700.0			
	237	TRST	41	1046.4	1046.6	.9	80.0			
	202	IZMI	6	1046.3	1046.8	1.1	130.0	70.0		
	200	GORK	6	1046.7	1046.9	.9	250.0D			
	15400	SGMR	23	1058	1141.5	73	50.0	24.0		
	100	GORK	44	1058		124 D		5.0		
	4995	CANR	3	1059.5	1101	3.5	9.0	3.0		
	15400	SGMR	3	1100	1100.1	.7	64.0	16.0		
	9400	SLOU	4	1100	1101.5	3	36.0			
	9285	ARCE	28	1100.2	1101.9	10.5				
	9100	GORK	4	1100.3	1101.6	8.2	39.0	5.5		
	8800	SGMR	23	1100.2	1101.7	38.8	21.7	9.0		
	4995	SGMR	23	1100.3	1118.7	41	8.5	3.5		
	3100	CRIM	24	1100	1112	40	50.0D	17.0		
	2950	GORK	21	1100.6	1116.5	111.7	17.5	5.6		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JULY 1972

JUL 1972	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
31	2830	ARCE	22	1100.5	1102	6.5				
	2695	SGMR	21	1100	1120.3	41.5	9.2	4.0		
	2695	CANR	3	1100.5	1101.5	1.5	4.0	2.0		
	2950	GORK	1	1101.3	1102.3	1.5	4.8	4.2		
	9100	GORK	29	1102.3	1102.3	6.2	14.0	4.7		
	1415	SGMR	23	1104.9	1125.5	36.1	5.4	2.0		
	245	SGMR	43	1108.7	1140.3	771.3D	79.0			
	4995	CANR	45	1109.5	1110.5	12	36.0	17.0		
	35000	SGMR	3	1110.7	1112.2	1.9	57.0	16.0		
	15400	SGMR	3	1110.6	1111.8	4.5	64.0	18.0		
	9500	BERL	4	1110	1112	80 U	110.0			
	9400	SLOU	4	1110.8	1112	7	140.0			
	9285	ARCE	4	1110.7	1112.1	5.4				
	9100	GORK	4	1110.7	1112.1	32.1	130.0	16.0		
	8800	SGMR	4	1110.7	1111.9	7.3	145.0	36.0		
	4995	SGMR	46	1110.6	1112	8.1	53.0	13.0		
	4995	SGMR	46	1110.6	1114	8.1	53.0	13.0		
	2950	GORK	45	1110.9	1112.4	9.6	95.0	30.0		
	2950	GORK		1110.9	1114.1		38.0			
	2830	ARCE	4	1110.7	1112.1	6.2				
	2695	CANR	1	1110.5	1115	11.5	62.0	21.0		
	2695	SGMR	4	1110.6	1112	7.1	62.0	16.0		
	1500	BERL	4	1110	1112.2	100	29.0			
	1420	CANR	1	1110	1112	7.5	26.0	9.0		
	1415	SGMR	4	1110.6	1112.2	7.1	20.9	5.0		
	930	BORD	45	1110	1110.8	8	8.0	2.0		
	200	GORK	44	1110		110 D		5.0		
	950	GORK	4	1111	1112	22.9	7.6	2.7		
	650	GORK	2	1111	1112.2	12.3	3.1	1.8		
	606	SGMR	1	1111.2	1111.7	1.4	2.5	1.0		
	650	GORK	29	1113	1113	10.3	1.9	1.3		
	9100	GORK	29	1115	1115	27.8	40.0	13.0		
	950	GORK	29	1115	1115.1	18.9	3.8	1.5		
	9285	ARCE	29	1116.1		40				
	2950	GORK	29	1116.5	1116.5	95.8	17.5	5.5		
	2830	ARCE	29	1116.9		31				
	19000	SLOU	3	1138	1141	5	73.0			
	237	TRST	41	1139.9	1140.2	1.5	520.0			
	15400	SGMR	3	1140	1140.5	.8	62.0	16.0		
	9400	SLOU		1140.5	1141	3	14.0			
	15400	SGMR	4	1155.9	1159.1	6.9	134.0	34.0		
	9400	HUAN	20	1155.6	1157.8	14.9	26.1	6.7		
	19000	SLOU	4	1156.5	1159.5	7	203.0			
	10700	PENN	45	1157.9	1159.2	3	45.8	16.6		
	9400	SLOU	3	1157	1159.3	7	32.0			
	35000	SGMR	3	1158.4	1159.3	1.9	76.0	19.0		
	2695	CANR	8	1200.5	1201.5	1	4.0	1.0		
	9100	GORK	1	1204.8	1205	.5	24.0	12.0		
	100	GORK	6	1224	1224.2	.5	50.0D			
	9500	BERL	20	1233 U	1346	121 U	16.0	3.0		
	9400	HUAN	20	1312.7	1345.9	52.2	16.8	2.6		
	2800	OTTA	26	1325		35	3.5			
	15400	SGMR	3	1344.2	1346	3.4	53.0	12.0		
	19000	SLOU	3	1345	1346.4	2.5	47.0			
	10700	PENN	1	1345.1	1346.2	2.4	8.1	3.2		
	9400	SLOU	3	1345.3	1346.3	2	7.0			
	19000	SLOU	21	1349	1352.1	11	62.0			
	15400	SGMR	3	1351.6	1351.8	.6	17.8	4.5		
	9285	ARCE	20	1401.7	1412.2	24 U				
	2830	ARCE	20	1401.2	1412.3	25 U				
	2800	OTTA	32	1410	1500	110	-3.6	-1.8		
	536	ONDR	3	1436.5	1436.5	1.5	70.0			
	9400	HUAN	22	1445.9	1547.9	35.8	11.2	5.2		
	15400	SGMR	4	1446.9	1447.7	5.1	77.0	18.0		
	9500	BERL	1	1446.7	1447.7	4.3	14.0	4.0		
	19000	SLOU	3	1447	1448	2.5	80.0			
	10700	PENN	3	1447	1447.9	3.4	23.3	6.7		
	9400	SLOU	3	1447.3	1448	2.5	14.0			
	8800	SGMR	1	1447.5	1448	2.3	7.7	3.0		
	15400	SGMR	30	1452	1452	8.2	7.1	3.5		
	15400	SGMR	3	1453.9	1454.1	.5	24.9	6.5		
	35000	SGMR	3	1454	1454.2	.4	72.0	15.0		
	19000	SLOU	3	1454	1454.5	1	49.0			
	15400	SGMR	23	1502.2	1506.3	11.3	18.5	8.0		
	10700	PENN	1	1506	1507.9	3.1	6.3	3.2		
	35000	SGMR	3	1507.5	1507.9	.6	72.0	15.0		
	15400	SGMR	3	1507.4	1507.7	.6	47.6	11.0		
	15400	SGMR	3	1615.9	1616.5	1.4	21.0	5.1		
	15400	SGMR	3	1621.9	1622	.5	57.0	14.0		
	19000	SLOU	3	1622	1622.2	.5	43.0			
	10700	PENN	3	1622.1	1622.2	2.8	12.7	2.8		
	9400	SLOU	3	1622	1622.1	1	18.0			
	18	NCMA	6	1636	1637	3			1	
	10700	PENN	20	1703.1	1708.2	22	12.7	4.9		
	15400	SGMR	20	1704.0	1709.8	11.0	30.0	15.0		
	15400	SGMR	3	1718.3	1718.6	.5	14.8	4.0		
	10700	PENN	3	1747.5	1748	6	10.6	2.8		
	15400	SGMR	3	1815.0	1817.0	5.0	15	7.0		
	10700	PENN	3	1900 E	1903	6 E	12.0D			
	15400	SGMR	3	1902.1	1903.1	4.7	24.4	6.1		
	35000	SGMR	3	1909.6	1910	1.4	115.0	25.0		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JULY 1972

JUL 1972	FREQUENCY STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
31	15400 SGMR	3	1910	1910.4	1.3	29.6	5.5		
	18 MCMA	6	1927	1929	3			1	
	9400 HUAN	20	2017.8	2029.4	44.2	17.7	3.4		
	10700 PENN	20	2022.6	2029.2	13.4	12.7	2.5		
	9400 HUAN	20	2126.2	2128.6	16.8	19.4	5.0		
	15400 SGMR	4	2128	2128.7	2.5	24.4	5.0		
	10700 PENN	3	2128	2128.7	4.9	19.4	6.0		
	15400 SGMR	4	2136.7	2136.9	2.3	22.2	5.0		
	10700 PENN	1	2136.4	2137.1	3.2	6.3	2.5		

Observatories:

ARCE = Arcetri
BERL = Berlin-Adlershof
BORD = Bordeaux
BOUL = Boulder
CANR = Canary Islands
CRIM = Simferopol
CRON = Carnarvon
GORK = Gorky
HARS = Harestua
HIRA = Hiraiso
HUAN = Huancayo
IRKU = Irkutsk
IZMI = Moscow IZMIRAN
KIEV = Kiev
MANI = Manila
MCMA = McMath-Hulbert
ONDR = Ondrejov
OTTA = Ottawa ARO
PENN = Penn. State Univ.
PENT = Penticton
POTS = Potsdam
SLOU = Slough
SGMR = Sagamore Hill
TOKO = Tokyo
TRST = Trieste
TYKW = Toyokawa
UPIC = Upice
VORO = Voroshilov

Explanation of Type Code:

1 Simple 1
2 Simple 1F
3 Simple 2
4 Simple 2F
5 Simple
6 Minor
7 Minor +
8 Spike
20 Simple 3
21 Simple 3A
22 Simple 3F
23 Simple 3AF
24 Rise
25 Rise A
26 Fall
27 Rise and Fall
28 Precursor
29 Post Burst Increase
30 Post Burst Increase A
31 Post Burst Decrease
32 Absorption
40 Fluctuation
41 Group of Bursts
42 Series of Bursts
43 Onset of Noise Storm
44 Noise Storm in Progress
45 Complex
46 Complex F
47 Great Burst
48 Major
49 Major +

Errata: The following burst observed by Sagamore Hill (SGMR) should be added to the June 2, 1972 data as listed on page 36 of "Solar-Geophysical Data", December 1972, 340 Part II.

Frequency MHz	Start Time	Max Time	Duration Minutes	Type Event	Peak Flux	Mean Flux
4995	1721.5	1721.8	2.0	1	4.4	2.0
2695	1721.5	1721.8	6.0	1	9.3	3.1
1415	1721.3	1722.3	1.4	2	3.9	1.5
606	1721.3	1721.9	4.0	2	2.6	1.0
410	1720.8	1721.6	4.1	6	2.9	1.2
243	1721.3	1721.5	1.2	6	10.8	4.0

SOLAR X - RAY FLARES (2 - 12A°)
SATELLITE EXPLORER 35

JULY 1972

University of Iowa

Date 1972	Onset U.T.	Maximum U.T.	Peak-Ratio to Quiet Sun	Remarks and Values of Maximum Flux F (2-12 A°) in erg $(cm^2\ sec)^{-1}$
3 July	0135	0158	4	Complex rise
4 July	1128	1205	4	
6 July	0645	0657	8	
11 July	1344	1420	8	
13 July	--	1616	5	Onset not observed
14 July	2000	2015	10	
21 July	2053	2105	6	
22 July	1026	1033	4	
23 July	1644	1707	4	
31 July	1054	1118	7	

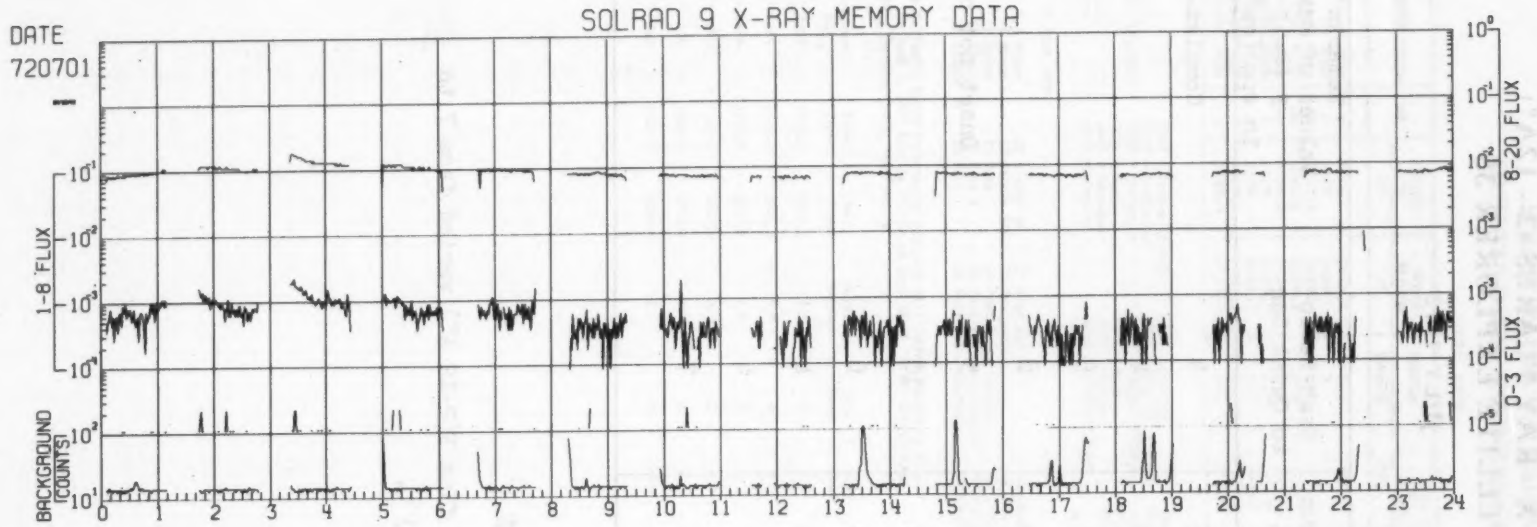
Notes:

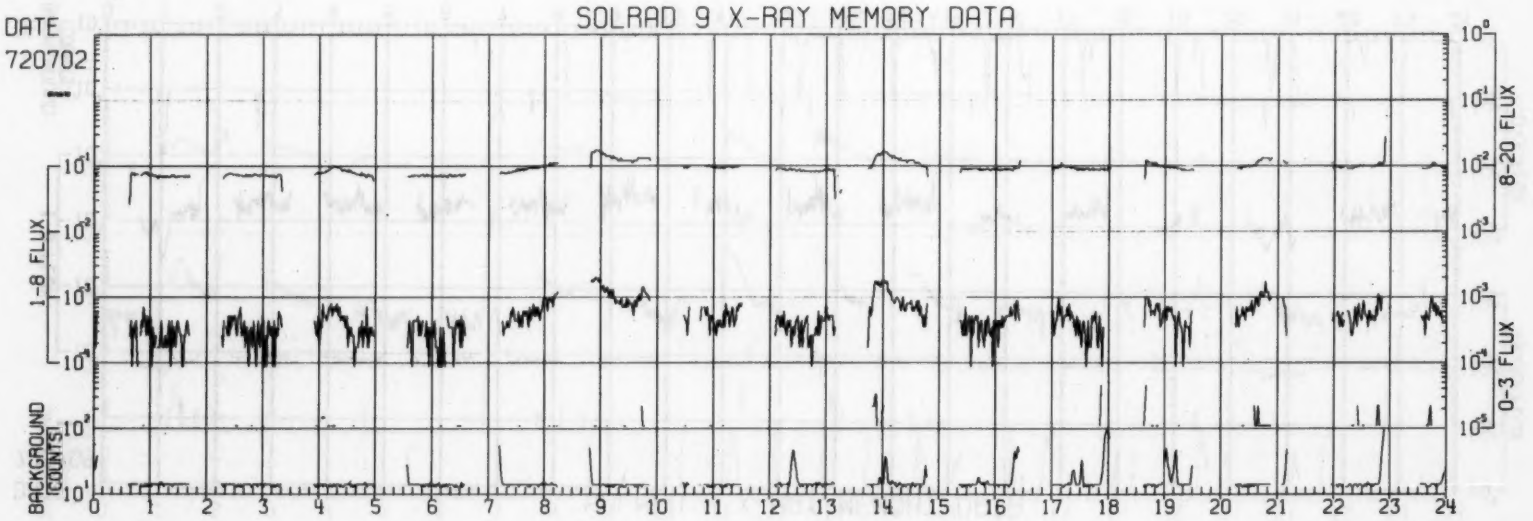
(1) Coverage this month 48%.

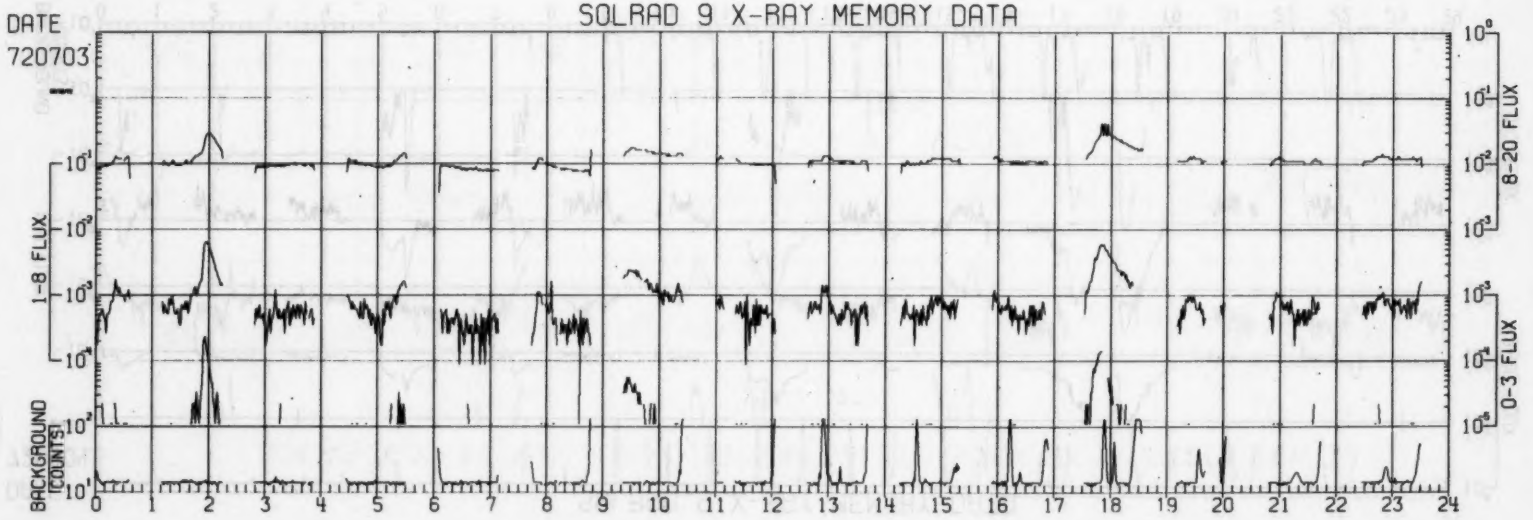
(2) Quiet sun (background) flux F(2-12 A°) varied from 7 to 22×10^{-4} erg $(cm^2\ sec)^{-1}$.

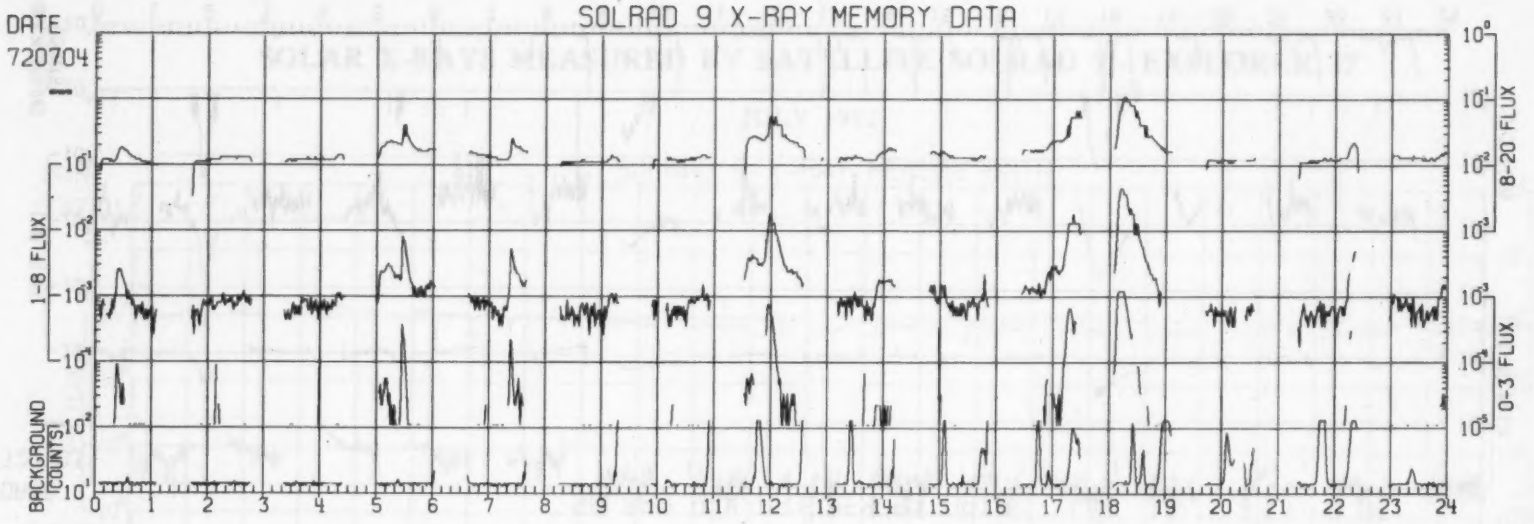
SOLAR X-RAYS MEASURED BY SATELLITE SOLRAD 9 - EXPLORER 37

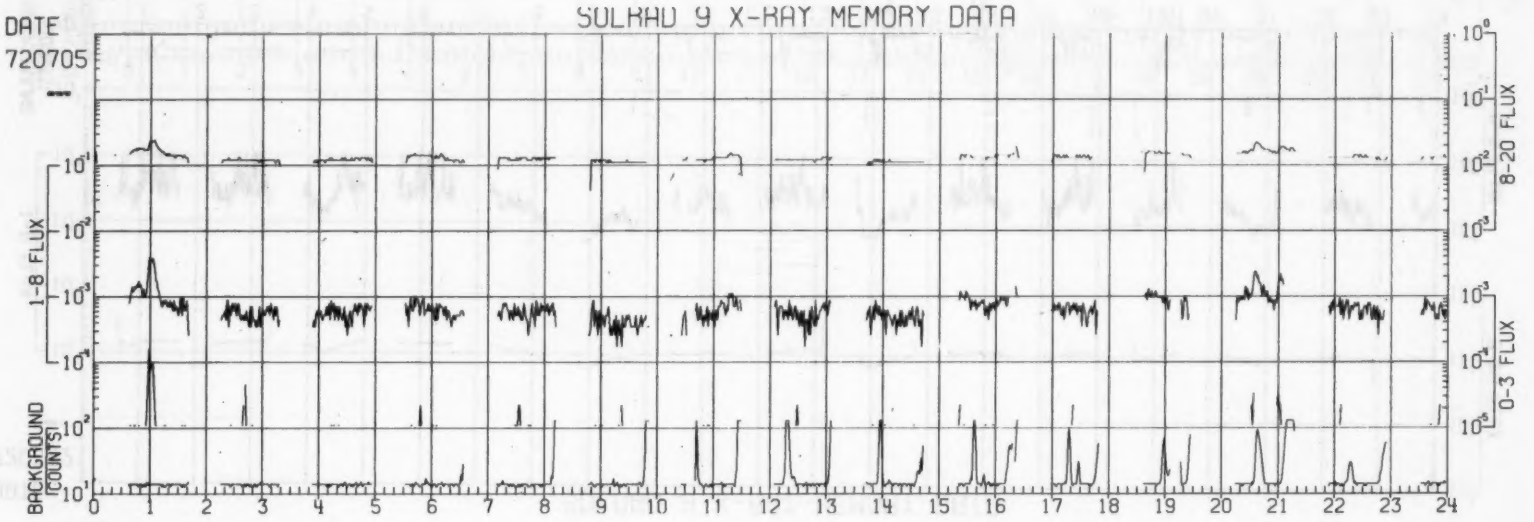
JULY 1972

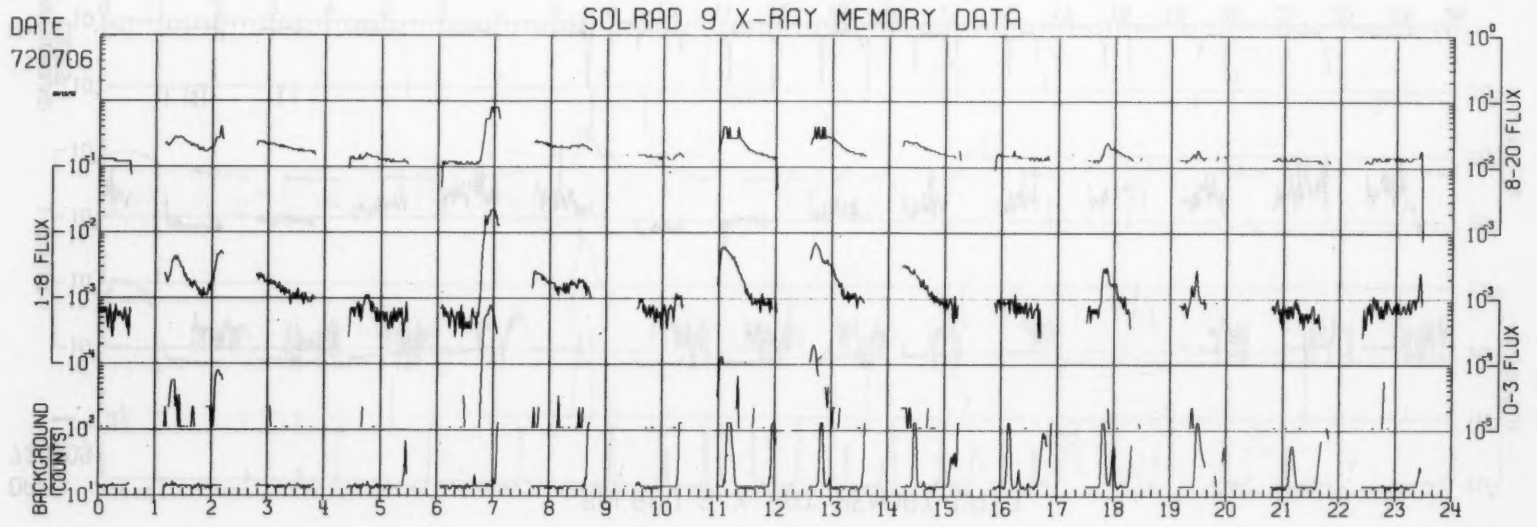


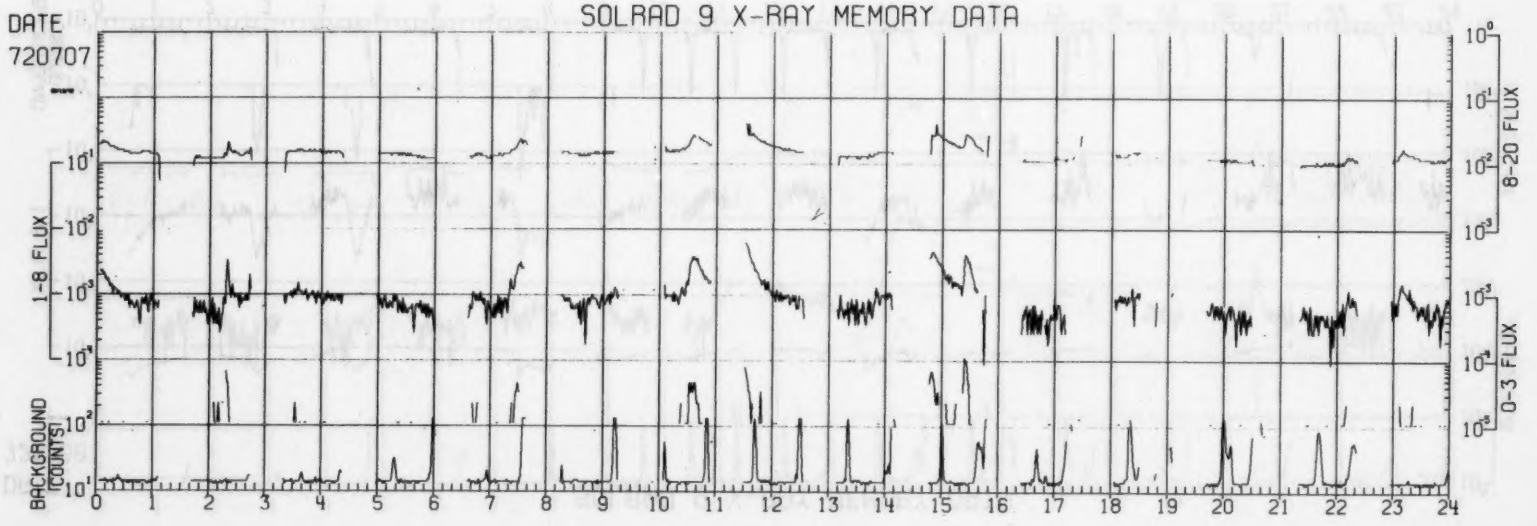

SOLRAD 9 X-RAY MEMORY DATA
DATE
720702
1-8 FLUX
8-20 FLUX
0-3 FLUX
BACKGROUND (COUNTS)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

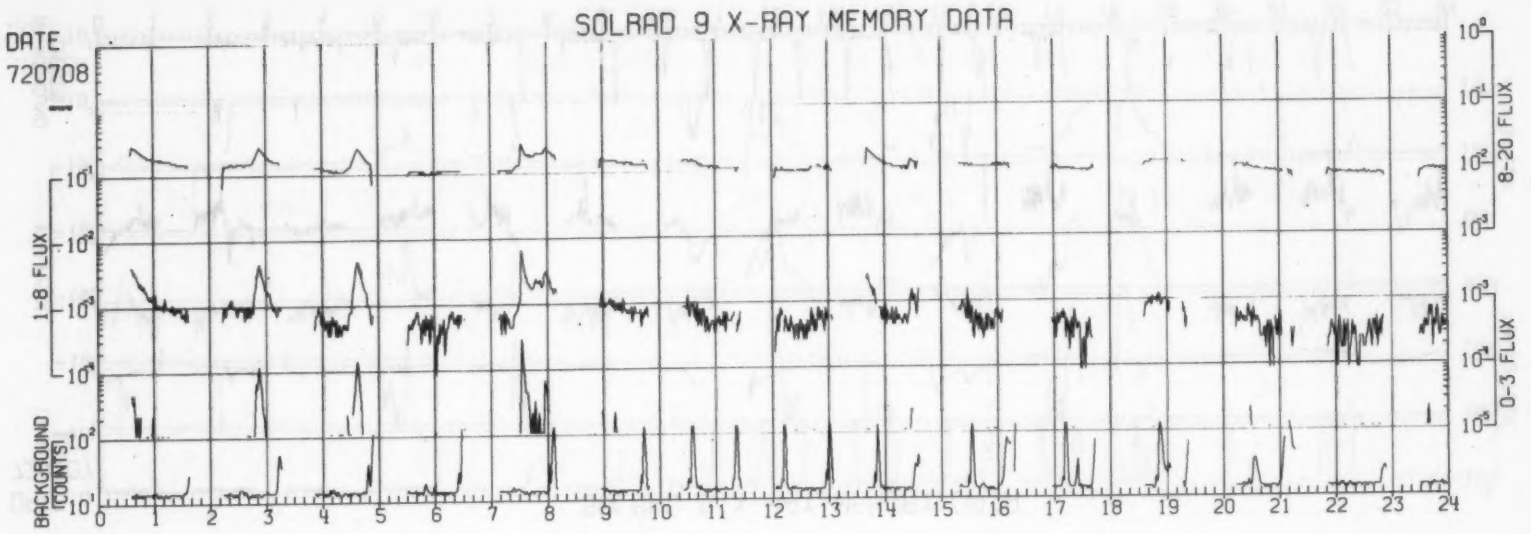

SOLRAD 9 X-RAY MEMORY DATA
DATE
720703
1-8 FLUX
8-20 FLUX
0-3 FLUX
BACKGROUND (COUNTS)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

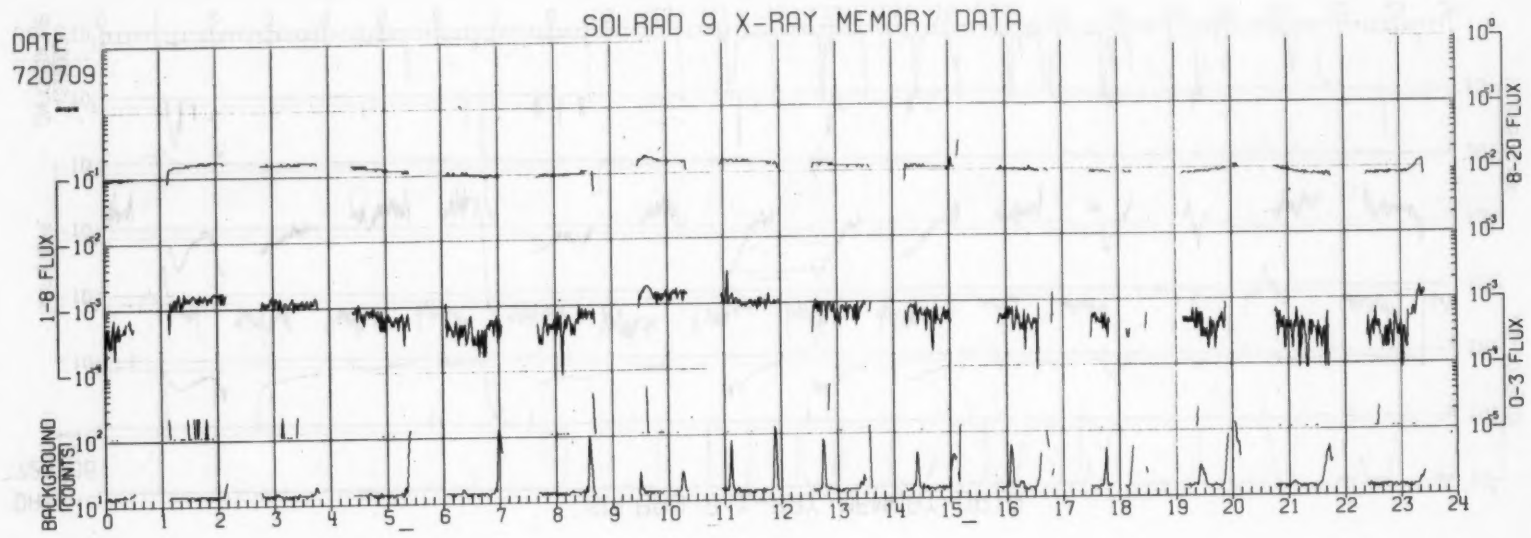

SOLRAD 9 X-RAY MEMORY DATA
DATE
720704
1-8 FLUX
8-20 FLUX
0-3 FLUX
BACKGROUND (COUNTS)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

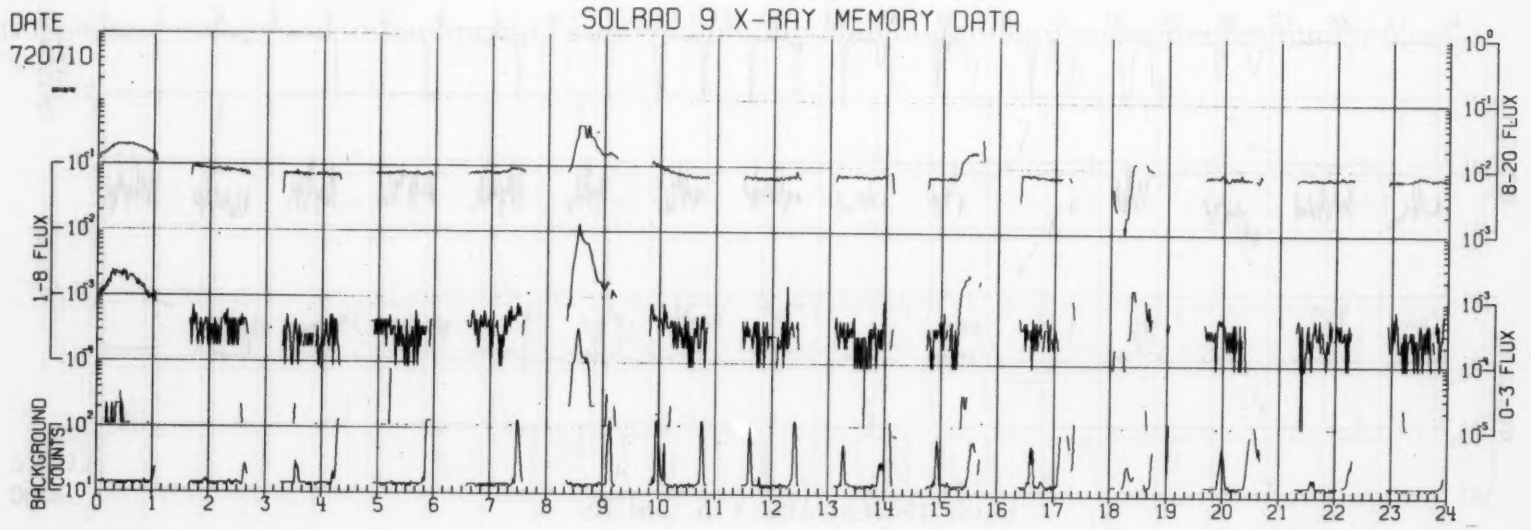

SOLRAD 9 X-RAY MEMORY DATA
DATE
720705
1-8 FLUX
8-20 FLUX
0-3 FLUX
BACKGROUND (COUNTS)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

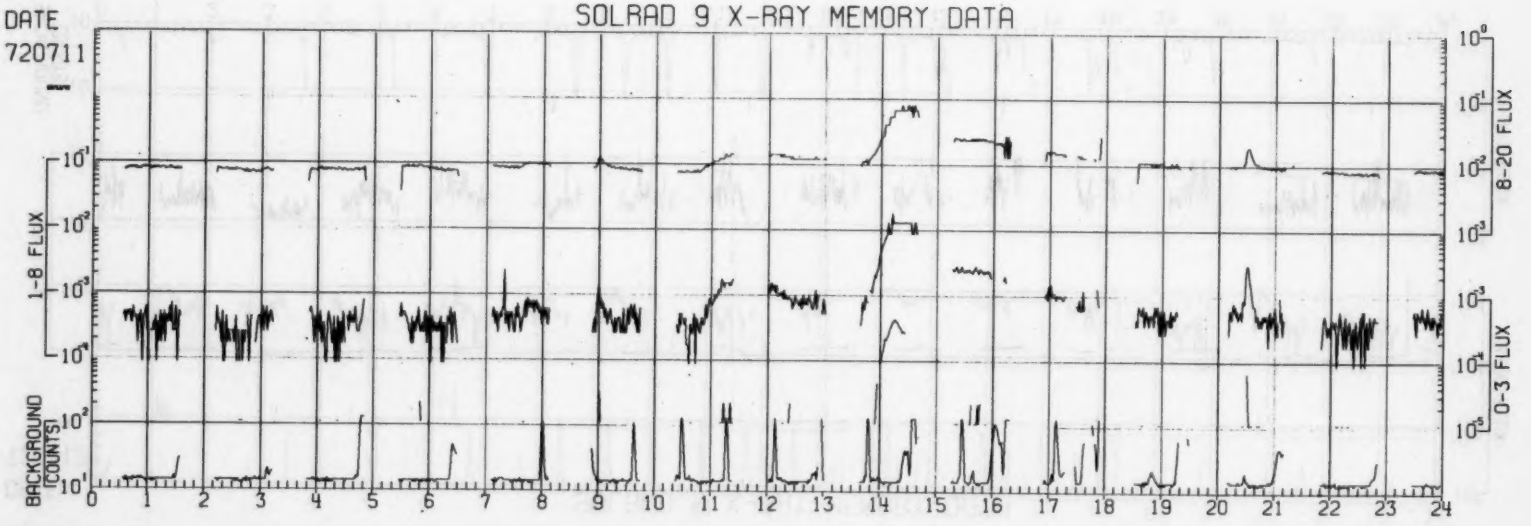

SOLRAD 9 X-RAY MEMORY DATA
DATE
720706
1-8 FLUX
8-20 FLUX
0-3 FLUX
BACKGROUND (COUNTS)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24


SOLRAD 9 X-RAY MEMORY DATA
DATE
720707
1-8 FLUX
8-20 FLUX
0-3 FLUX
BACKGROUND (COUNTS)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24


SOLRAD 9 X-RAY MEMORY DATA
DATE
720708
1-8 FLUX
8-20 FLUX
0-3 FLUX
BACKGROUND (COUNTS)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

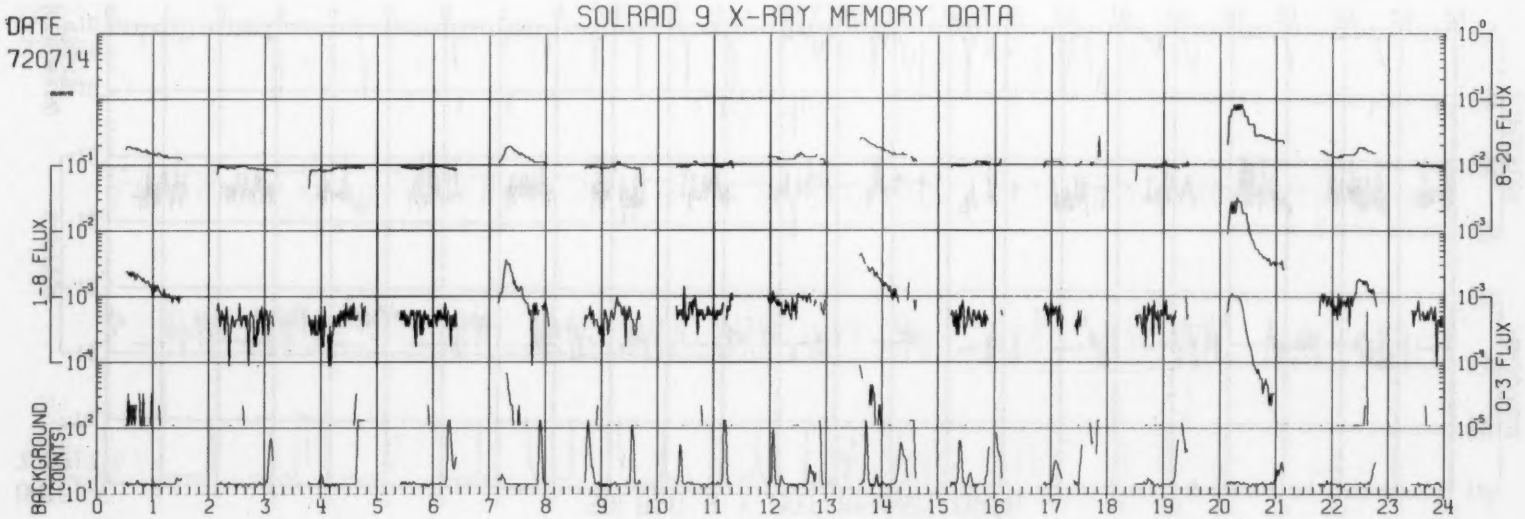

SOLRAD 9 X-RAY MEMORY DATA
DATE
720709
1-8 FLUX
8-20 FLUX
0-3 FLUX
BACKGROUND (COUNTS)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24


DATE
720710
SOLRAD 9 X-RAY MEMORY DATA
1-8 FLUX
8-20 FLUX
0-3 FLUX
BACKGROUND (COUNTS)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24


DATE
720711
SOLRAD 9 X-RAY MEMORY DATA
1-8 FLUX
8-20 FLUX
0-3 FLUX
BACKGROUND (COUNTS)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

SOLRAD 9 X-RAY MEMORY DATA
DATE
720712
0-3 FLUX
8-20 FLUX
1-8 FLUX
BACKGROUND
(COUNTS)

SOLRAD 9 X-RAY MEMORY DATA
DATE
720713
0-3 FLUX
8-20 FLUX
1-8 FLUX
BACKGROUND
(COUNTS)


DATE
720714
SOLRAD 9 X-RAY MEMORY DATA
1-8 FLUX
8-20 FLUX
0-3 FLUX
BACKGROUND (COUNTS)
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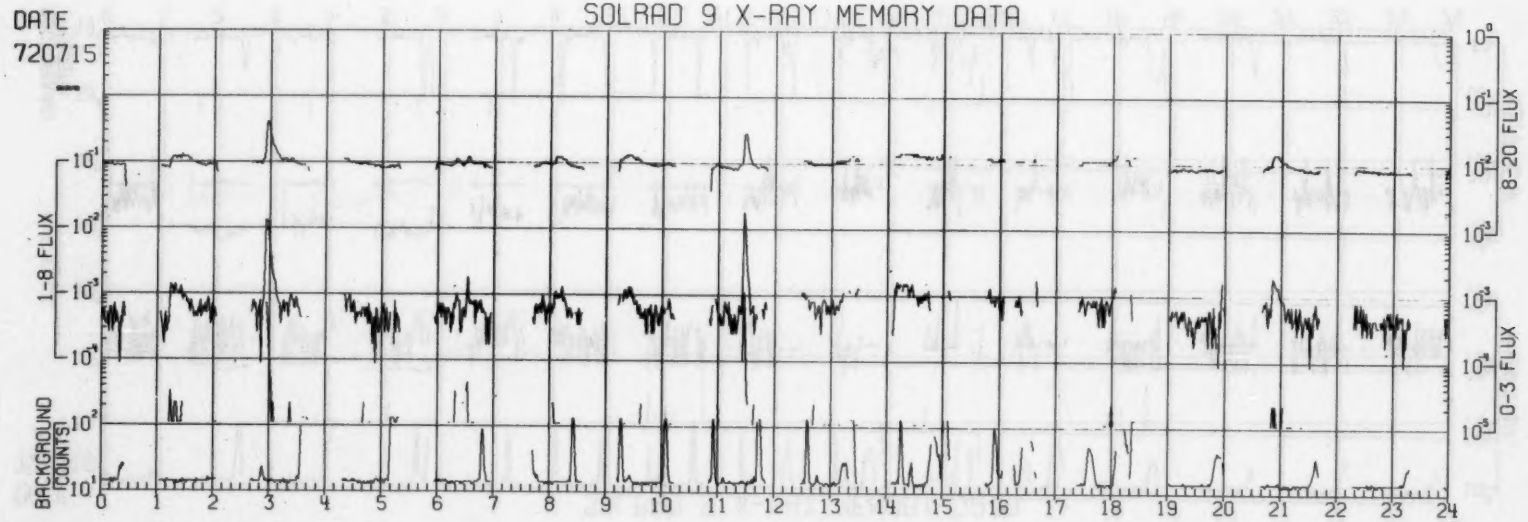
DATE
720715
SOLRAD 9 X-RAY MEMORY DATA
1-8 FLUX
8-20 FLUX
0-3 FLUX
BACKGROUND (COUNTS)
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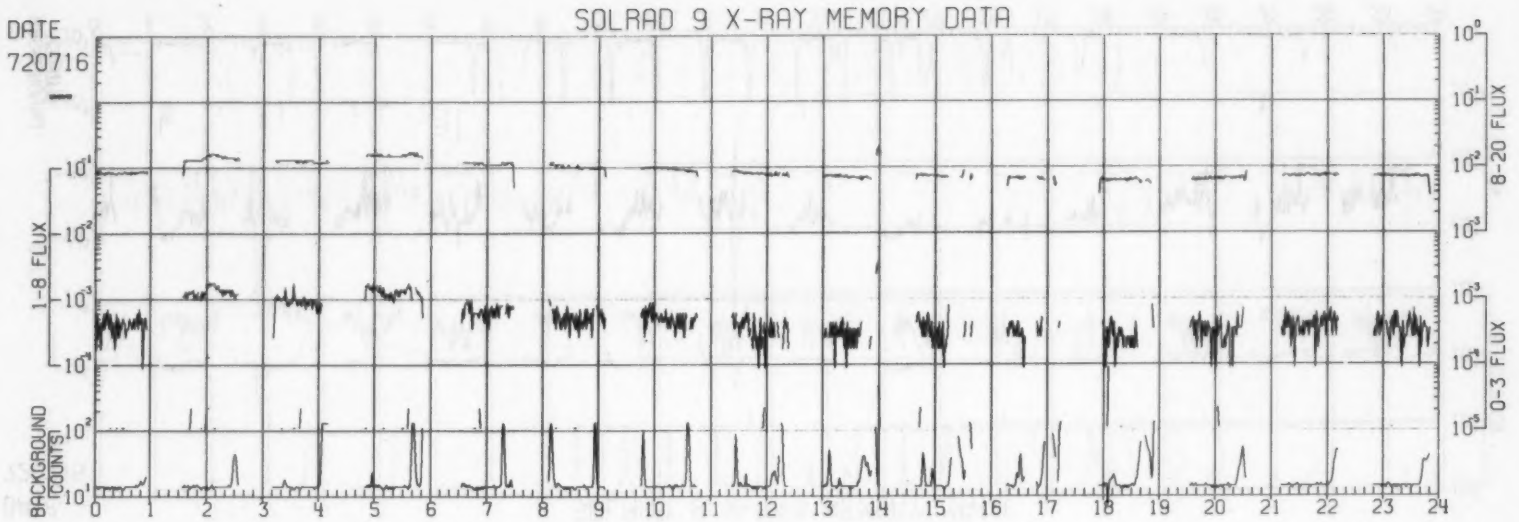
SOLRAD 9 X-RAY MEMORY DATA
DATE
720716
1-8 FLUX
8-20 FLUX
0-3 FLUX
BACKGROUND (COUNTS)
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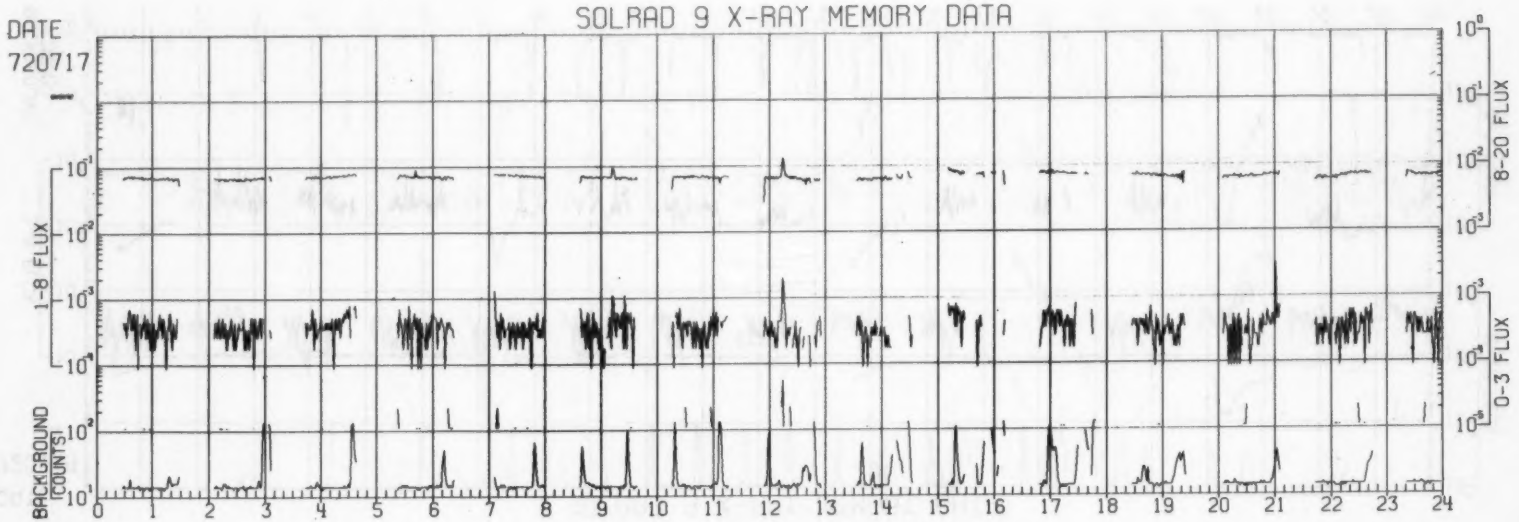
SOLRAD 9 X-RAY MEMORY DATA
DATE
720717
1-8 FLUX
8-20 FLUX
0-3 FLUX
BACKGROUND (COUNTS)
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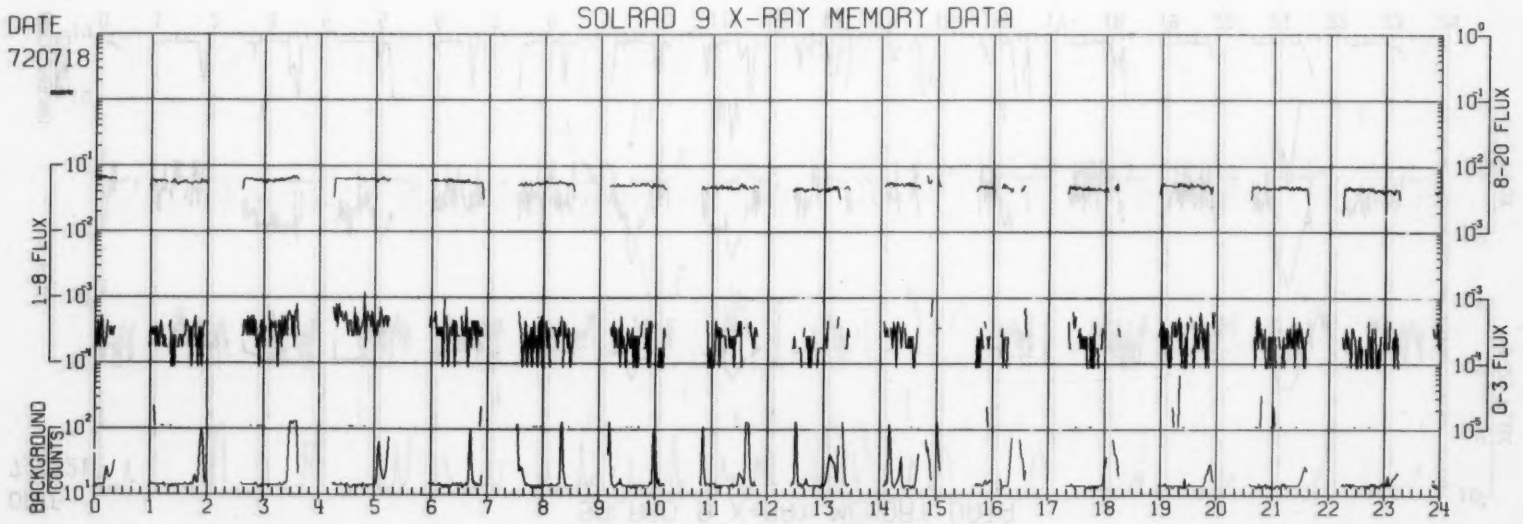
DATE
720718
SOLRAD 9 X-RAY MEMORY DATA
1-8 FLUX
8-20 FLUX
0-3 FLUX
BACKGROUND (COUNTS)
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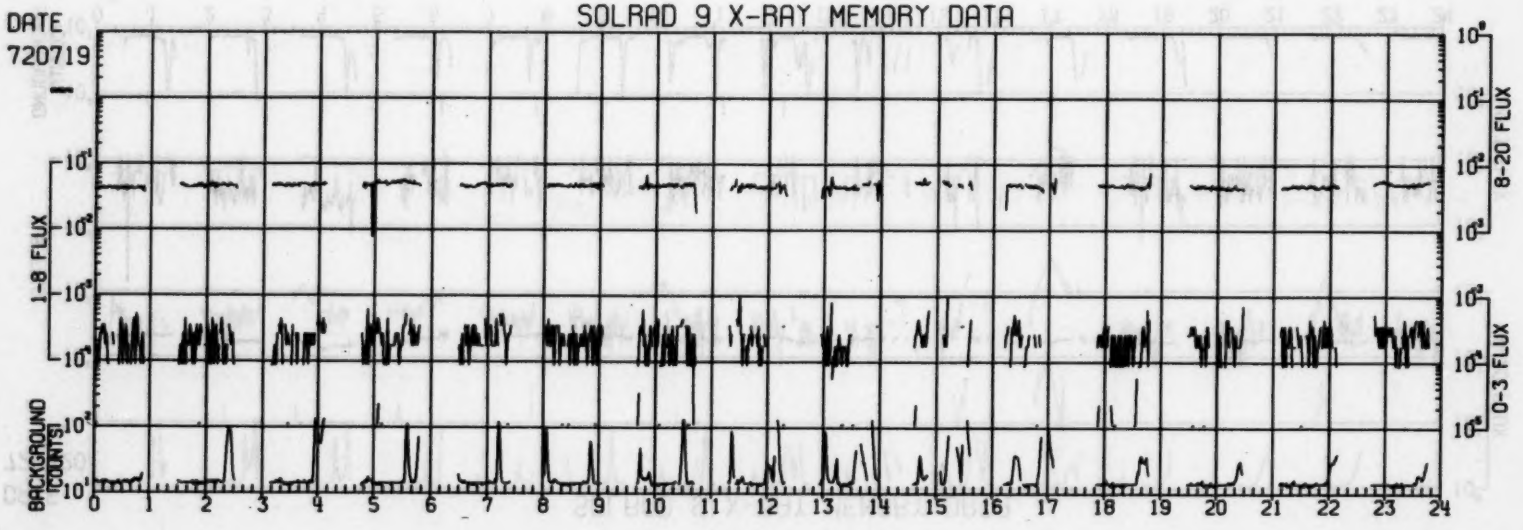
DATE
720719
SOLRAD 9 X-RAY MEMORY DATA
1-8 FLUX
8-20 FLUX
0-3 FLUX
BACKGROUND (COUNTS)
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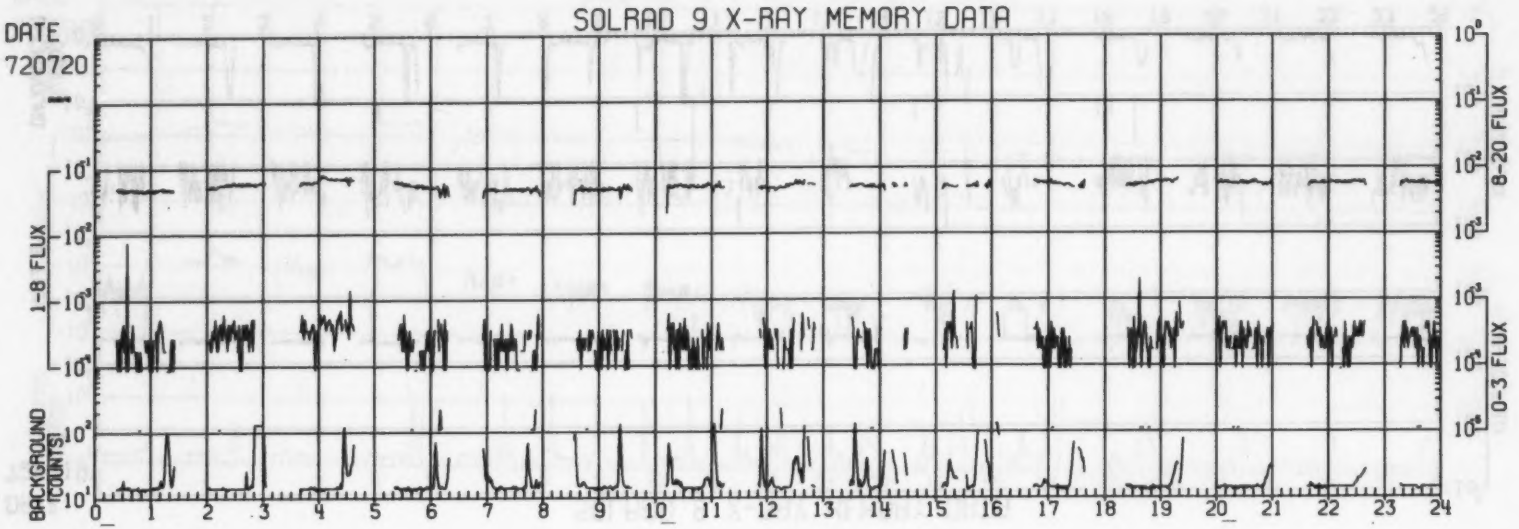
SOLRAD 9 X-RAY MEMORY DATA
DATE
720720
1-8 FLUX
8-20 FLUX
0-3 FLUX
BACKGROUND (COUNTS)
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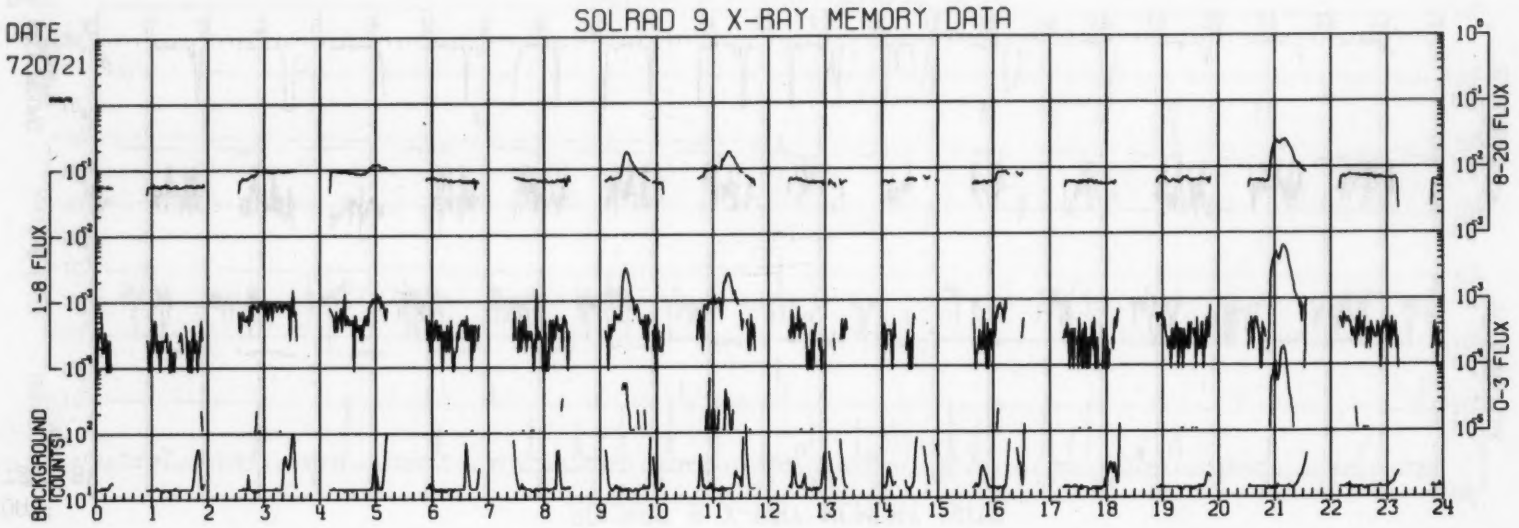
SOLRAD 9 X-RAY MEMORY DATA
DATE
720721
1-8 FLUX
8-20 FLUX
0-3 FLUX
BACKGROUND (COUNTS)
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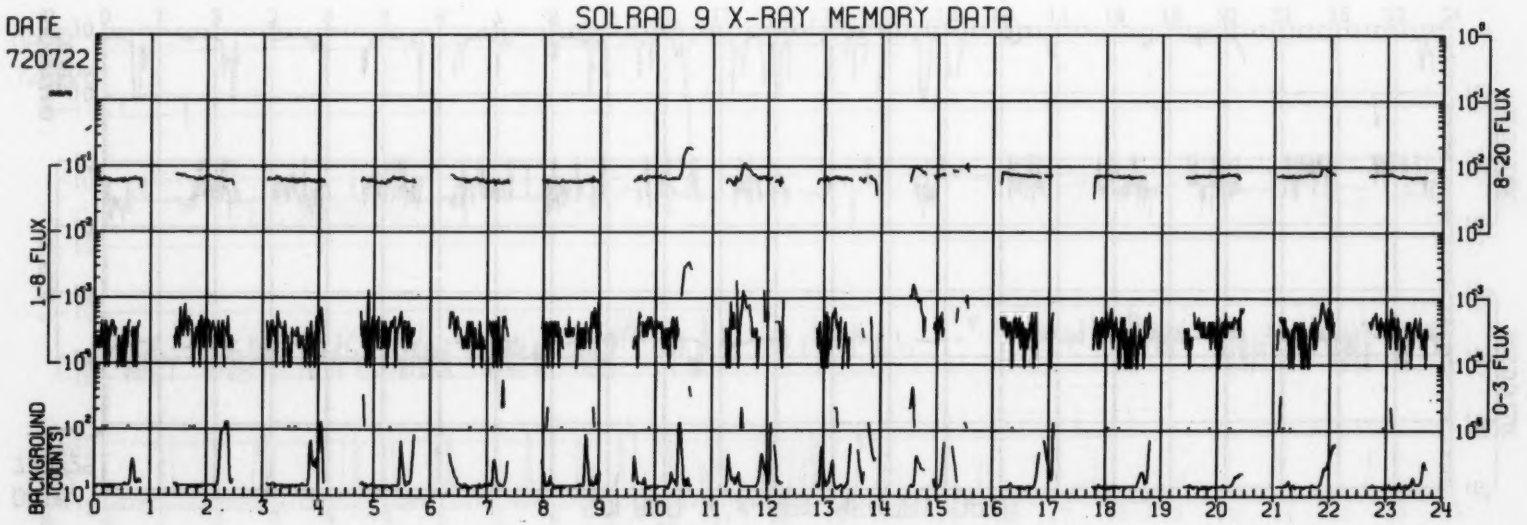
SOLRAD 9 X-RAY MEMORY DATA
DATE
720722
1-8 FLUX
8-20 FLUX
0-3 FLUX
BACKGROUND (COUNTS)
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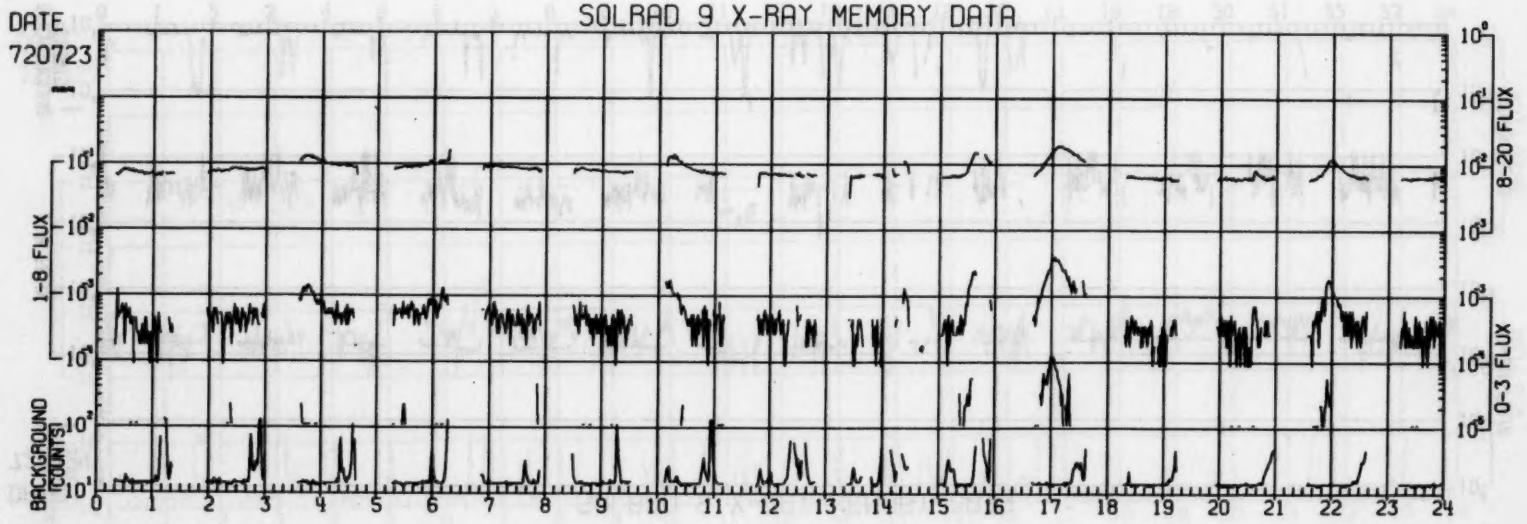
SOLRAD 9 X-RAY MEMORY DATA
DATE
720723
1-8 FLUX
8-20 FLUX
0-3 FLUX
BACKGROUND (COUNTS)
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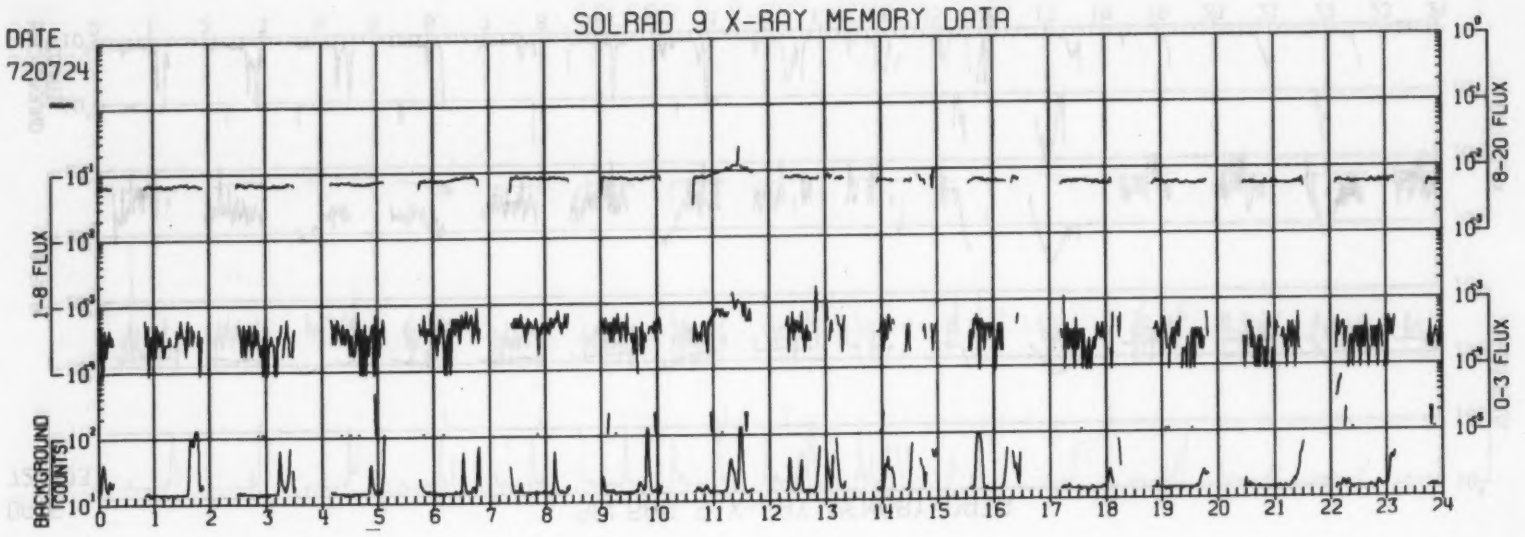
SOLRAD 9 X-RAY MEMORY DATA
DATE
720724
1-8 FLUX
8-20 FLUX
0-3 FLUX
BACKGROUND (COUNTS)
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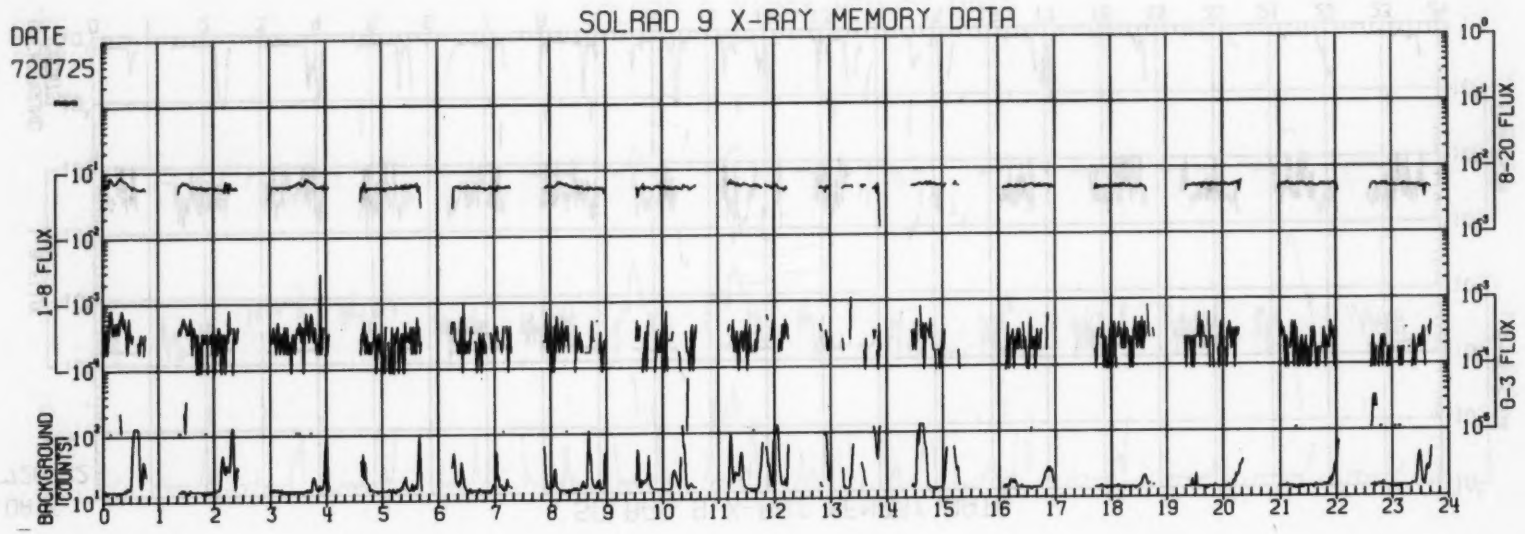
SOLRAD 9 X-RAY MEMORY DATA
DATE
720725
1-8 FLUX
8-20 FLUX
0-3 FLUX
BACKGROUND (COUNTS)
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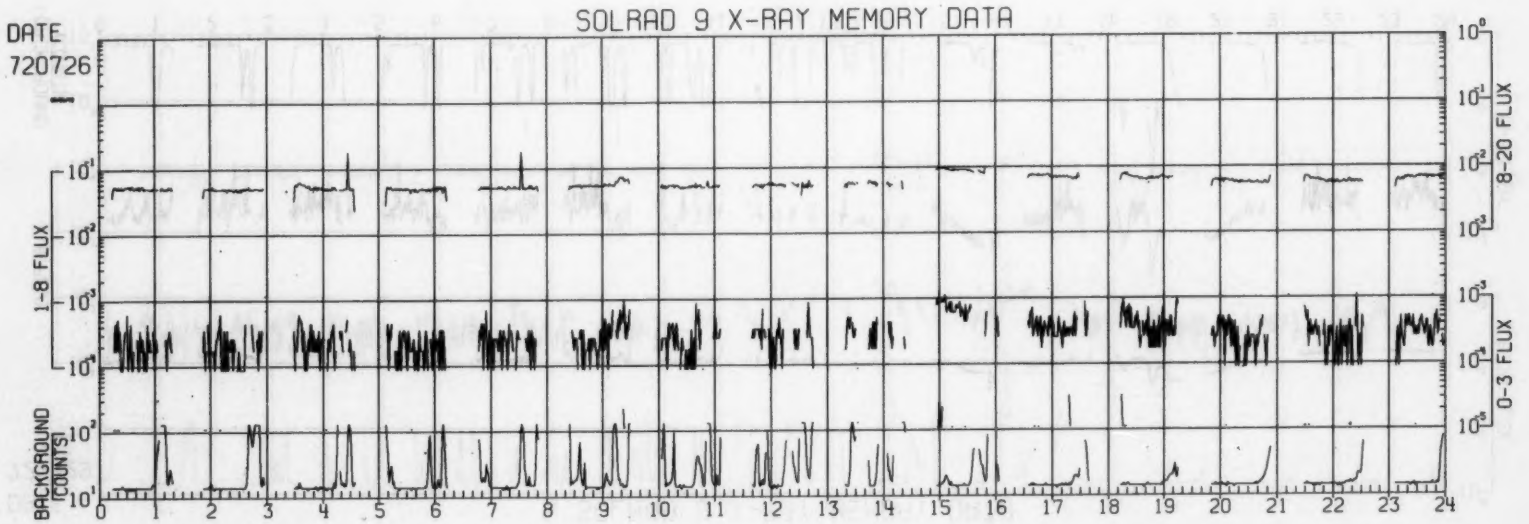
SOLRAD 9 X-RAY MEMORY DATA
DATE
720726
1-8 FLUX
BACKGROUND (COUNTS)
8-20 FLUX
0-3 FLUX
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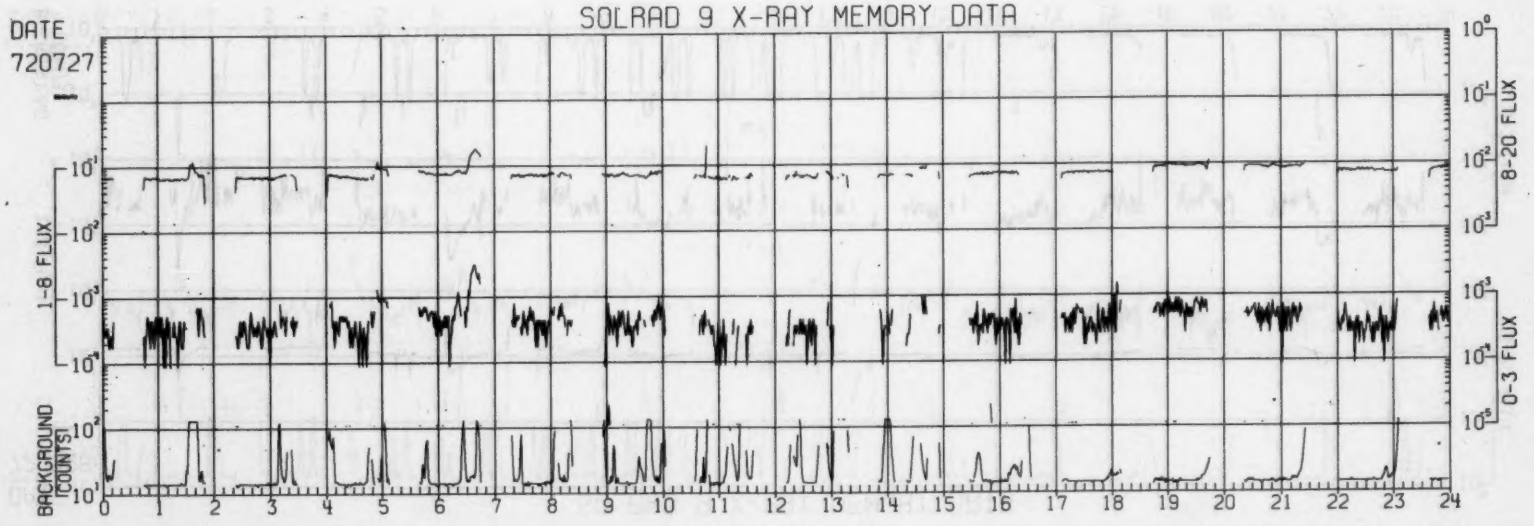
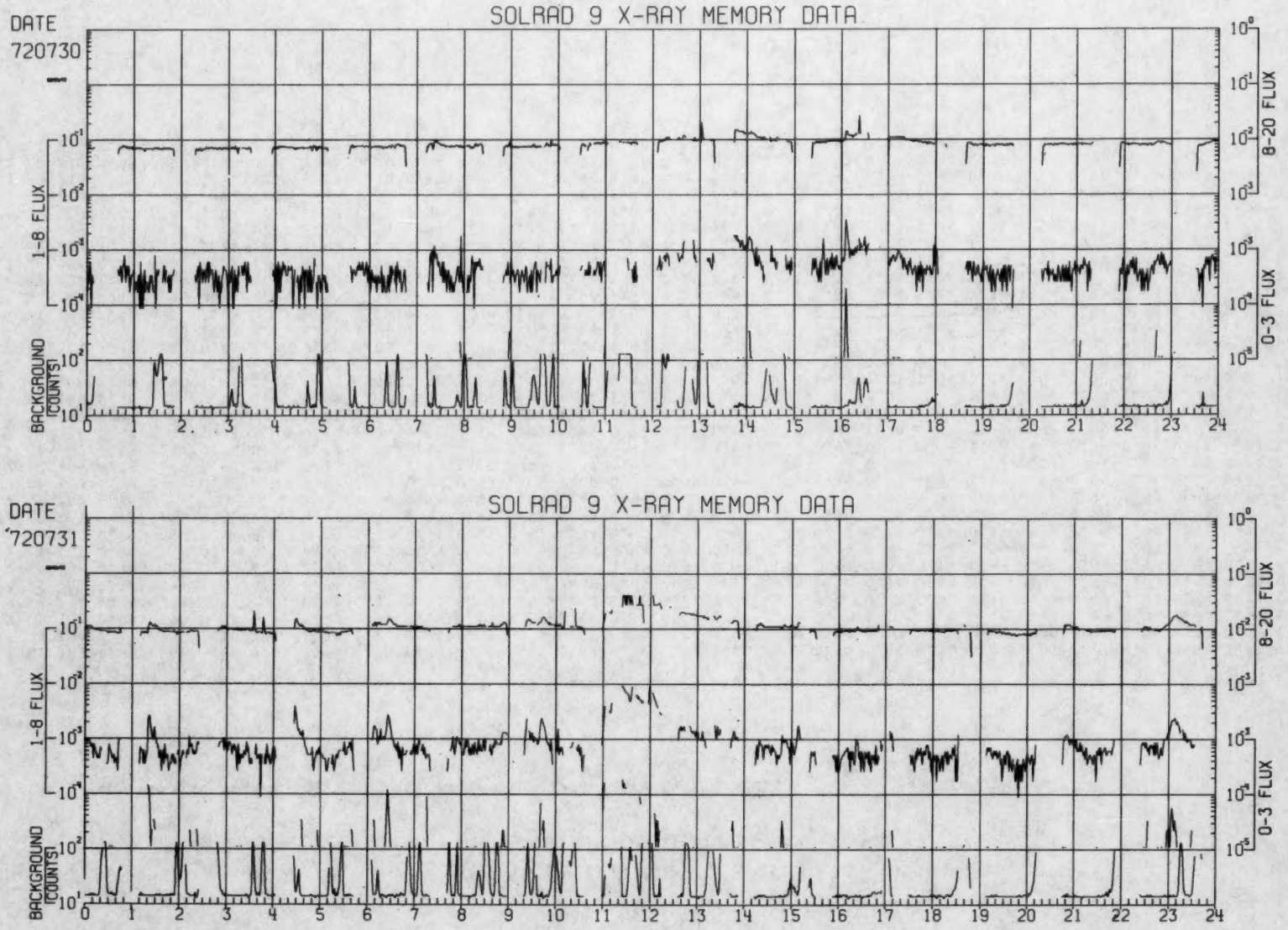

SOLRAD 9 X-RAY MEMORY DATA
DATE
720727
1-8 FLUX
BACKGROUND (COUNTS)
8-20 FLUX
0-3 FLUX
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

SOLRAD 9 X-RAY MEMORY DATA
DATE
720728
0-3 FLUX
8-20 FLUX
1-8 FLUX
BACKGROUND
(COUNTS)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

SOLRAD 9 X-RAY MEMORY DATA
DATE
720729
0-3 FLUX
8-20 FLUX
1-8 FLUX
BACKGROUND
(COUNTS)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24


SOLRAD 9 X-RAY MEMORY DATA
DATE
720730
1-8 FLUX
8-20 FLUX
0-3 FLUX
BACKGROUND (COUNTS)
SOLRAD 9 X-RAY MEMORY DATA
DATE
720731
1-8 FLUX
8-20 FLUX
0-3 FLUX
BACKGROUND (COUNTS)

SOLAR PROTONS BY SATELLITE
EXPLORER 41 (1969-53A)

JULY 1972

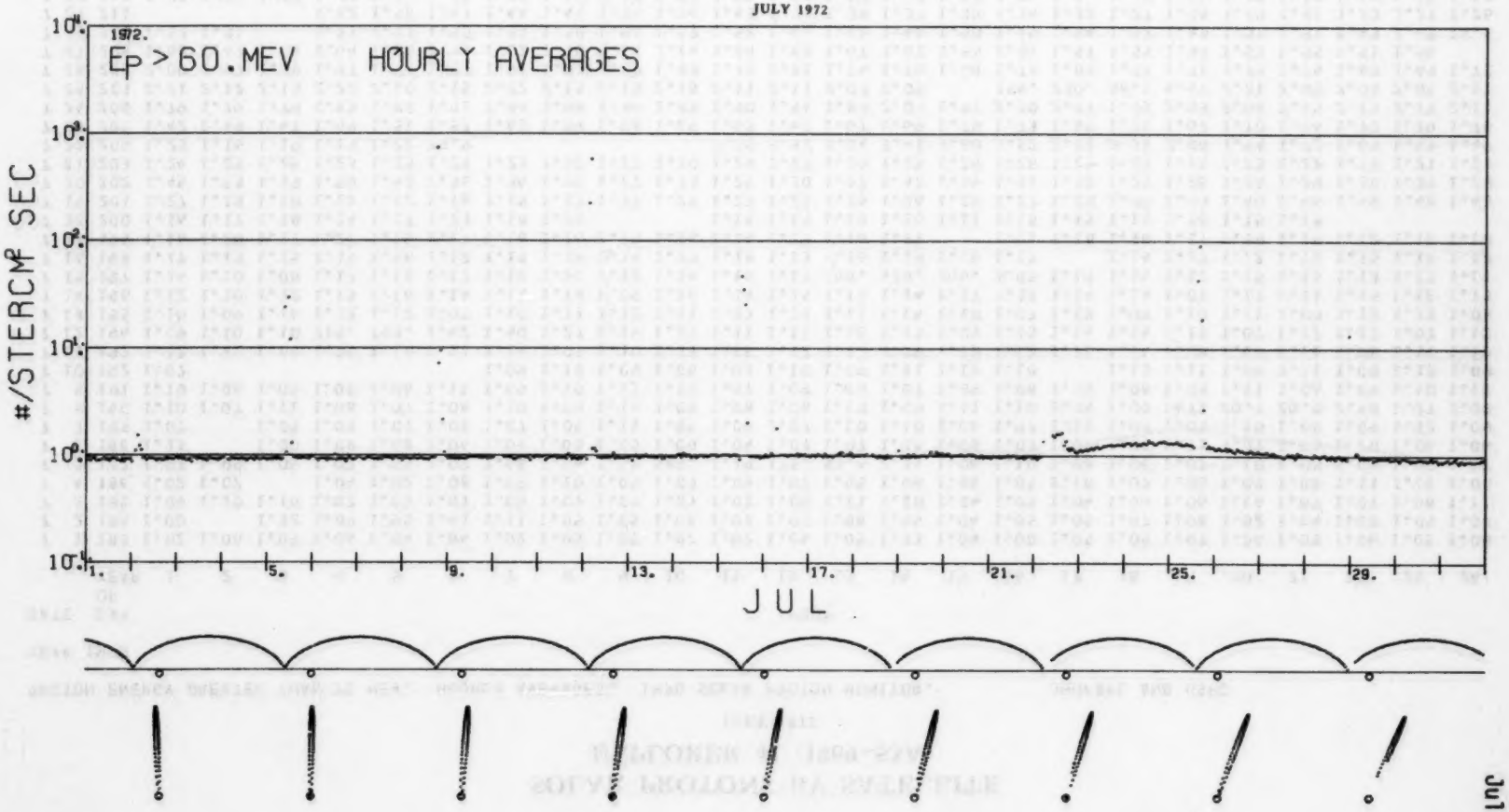
PROTON ENERGY GREATER THAN 60 MEV. HOURLY AVERAGES. IMPG SOLAR PROTON MONITOR. JHU/APL AND GSFC

YEAR 1972

DATE	DAY OF YEAR	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
7 1	183	0.89	0.96	0.88	0.93	0.93	0.89	0.89	0.89	0.91	0.97	0.90	0.92	0.88	0.92	0.94	0.94	0.90	0.89	0.88	0.93	0.88	0.93	0.92	0.92
7 2	184	0.87		1.10	1.53	1.23	1.11	0.94	0.95	0.90	0.94	0.93	0.94	0.92	0.89	0.91	0.93	0.90	0.90	0.95	0.92	0.94	0.92	0.91	0.95
7 3	185	0.96	0.94	0.95	0.92	0.95	0.89	0.90	0.92	0.86	0.95	0.95	0.91	0.96	0.94	0.92	0.92	0.88	0.96	0.92	0.93	0.92	0.93	0.90	0.92
7 4	186	0.94	0.94		0.91	0.91	0.97	0.93	0.92	0.92	0.92	0.95	0.92	0.92	0.88	0.92	0.94	0.92	0.90	0.93	0.97	0.91	0.92	0.94	0.93
7 5	187	0.90	0.94	0.92	0.92	0.96	0.92	0.95	0.92	0.93	24.0	1.06	29.7	12.1	1.29	0.96	0.94	0.94	0.95	0.94	0.96	0.95	0.93	0.93	0.97
7 6	188	0.98		0.94	0.89	0.93	0.94	0.94	0.93	0.90	0.95	0.92	0.92	1.02	0.90	0.95	0.92	0.94	0.93	0.87	0.93	0.97	0.92	0.91	0.93
7 7	189	0.96		0.95	0.92	0.93	0.95	0.98	0.95	0.93	0.93	0.93	0.92	0.95	0.92	0.97	0.96	0.98	0.94	0.95	0.92	0.97	0.95	0.93	0.94
7 8	190	0.89	0.95	0.93	0.95	0.93	0.93	0.94	0.99	0.92	0.94	0.96	0.92	0.92	0.93	0.90	0.95	0.95	0.95	739.	7.19	9.48	2.15	1.05	0.99
7 9	191	0.93	0.96	0.93	0.95	0.92	0.95	0.93	0.95	0.94	0.93	0.93	0.95	0.97	0.97	0.96	0.96	0.96	0.94	0.95	0.95	0.97	0.94	0.99	0.94
7 10	192	0.96						0.96	0.96	0.98	0.97	0.96	0.93	0.91	0.95	0.94	0.97		0.96	0.98	0.94	0.90	0.99	0.94	0.98
7 11	193	1.00	0.96	0.97	0.99	0.90	0.94	0.95	0.97	0.97	1.00	0.95	0.94	0.95	0.95	0.96	0.93	1.03	0.99	0.93	0.98	0.94	0.92	0.97	0.93
7 12	194	0.96	0.99	0.92	225.	578.	1.15	1.16	1.09	0.95	0.95	0.95	0.96	0.95	0.96	0.94	0.97	1.05	0.93	0.97	0.94	0.94	0.95	0.94	0.99
7 13	195	0.95	0.97	0.90	0.98	1.00	0.94	0.96	1.00	0.96	1.02	0.97	0.98	0.96	0.97	0.95	0.95	0.98	1.00	0.94	0.94	0.99	0.98	0.97	0.97
7 14	196	0.97	0.96	1.01	1.03	0.97	1.04	1.02	0.98	1.01	0.95	0.97	1.00	0.94	0.98	1.00	1.00	0.97	1.00	0.97	0.99	1.01	1.01	1.01	0.98
7 15	197	0.99	1.00	1.01	1.02	1.01	1.02	0.98	1.00	1.01	1.01	1.00	0.93	46.7	35.1	25.7	2.02	0.99	0.98	0.98	0.99	0.97	0.99	0.95	0.97
7 16	198	0.96	1.02	0.98	0.99	1.05	1.00	1.00	1.80	1.00	1.02	1.01	1.01	1.01	0.99	1.02	1.02		1.01	1.04	0.99	1.03	1.02	1.03	1.00
7 17	199	1.00	0.98	1.01	1.01	0.99	1.03	1.02	1.00	0.98	1.04	0.99	0.99	1.01	0.97		1.01	1.04	1.08	1.07	1.00	1.02	1.02	1.07	1.04
7 18	200	0.98	1.01	1.00	1.02	1.02	1.02	1.00	1.03			1.03	1.01	0.99	0.96	1.01	0.99	0.99	0.94	1.01	0.98	0.96			
7 19	201	1.12	1.00	0.97	1.00	0.98	1.03	0.98	0.99	1.03	0.98	0.99	0.99	1.01	1.00	1.02	0.98	1.02	1.09	1.02	1.02	1.09	1.04	1.06	1.06
7 20	202	1.03	1.02	1.05	1.04	0.98	1.01	1.01	1.01	1.01	1.03	1.02	1.00	1.01	1.03	1.03	1.03	1.02	0.98	0.99	0.97	1.02	0.97	0.99	0.98
7 21	203	0.97	0.96	1.00	0.99	0.98	1.00	0.97	0.98	0.99	0.99	1.02	0.99	0.99	1.02	1.00	0.96	0.96	0.99	0.98	0.94	0.98	1.00	1.00	0.96
7 22	204	0.97	0.99	0.94	0.98	0.99	1.38					1.56	1.51	1.61	1.60	1.62	1.64	1.25	1.38	1.18	1.13	1.18	1.15	1.10	1.06
7 23	205	1.11	1.14	1.11	1.13	1.15	1.13	1.17	1.19	1.16	1.19	1.21	1.18	1.19	1.24	1.24	1.25	1.26	1.27	1.25	1.24	1.27	1.29	1.26	1.30
7 24	206	1.25	1.30	1.32	1.32	1.27	1.29	1.33	1.26	1.30	1.26	1.32	1.31	1.29	1.39	1.34	1.34	1.29	1.28	1.34	1.36	1.35	1.37	1.35	1.32
7 25	207	1.31	1.32	1.31	1.33	1.34	1.25	1.30	1.26	1.26	1.31	1.29	1.28	1.26	1.21		43.2	90.9	18.6	2.72	1.33	1.19	1.23	1.20	1.21
7 26	208	1.16	1.15	1.19	1.17	1.14	1.14	1.19	1.12	1.17	1.14	1.11	1.08	1.17	1.13	1.11	1.12	1.09	1.08	1.08	1.12	1.10	1.06	1.08	1.10
7 27	209	1.08	1.07	1.07	1.08	1.09	1.03	1.06	1.07	1.04	1.03	1.01	1.02	0.99	0.97	1.01	1.05	1.01	1.04	1.03	0.95	1.06	1.02	1.04	
7 28	210	1.02	1.02		1.00	0.98	1.04	1.01	1.00	0.97	1.02	1.02	1.01	0.97	0.97	1.02	0.99	0.96	1.00	1.00	0.97	0.97	0.98	0.94	13.3
7 29	211				1.07	1.04	0.95	0.99	0.95	0.97	0.96	0.95	0.99	0.91	0.95	0.93	0.96	0.95	0.95	0.95	0.96	0.96	0.93	0.93	0.94
7 30	212	0.95	0.95	0.90	0.95	0.96	0.96	0.94	0.93	0.89	0.93	0.91	0.92	0.93	0.93	0.93	0.91	0.93	0.90	0.91	0.95	0.91	0.93	0.92	0.86
7 31	213	0.90	0.88	0.91	0.91	0.93	0.88	0.90	0.92	0.96	0.89	0.86	0.91	0.88	0.87	0.89	0.90	0.89	0.88	0.88	0.89	0.89	0.90	0.92	0.93

SOLAR PROTONS BY SATELLITE
EXPLORER 41 (1969-53A)

JULY 1972



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Jul 72

SOLAR PROTONS BY SATELLITE
EXPLORER 41 (1969–53A)
JULY 1972

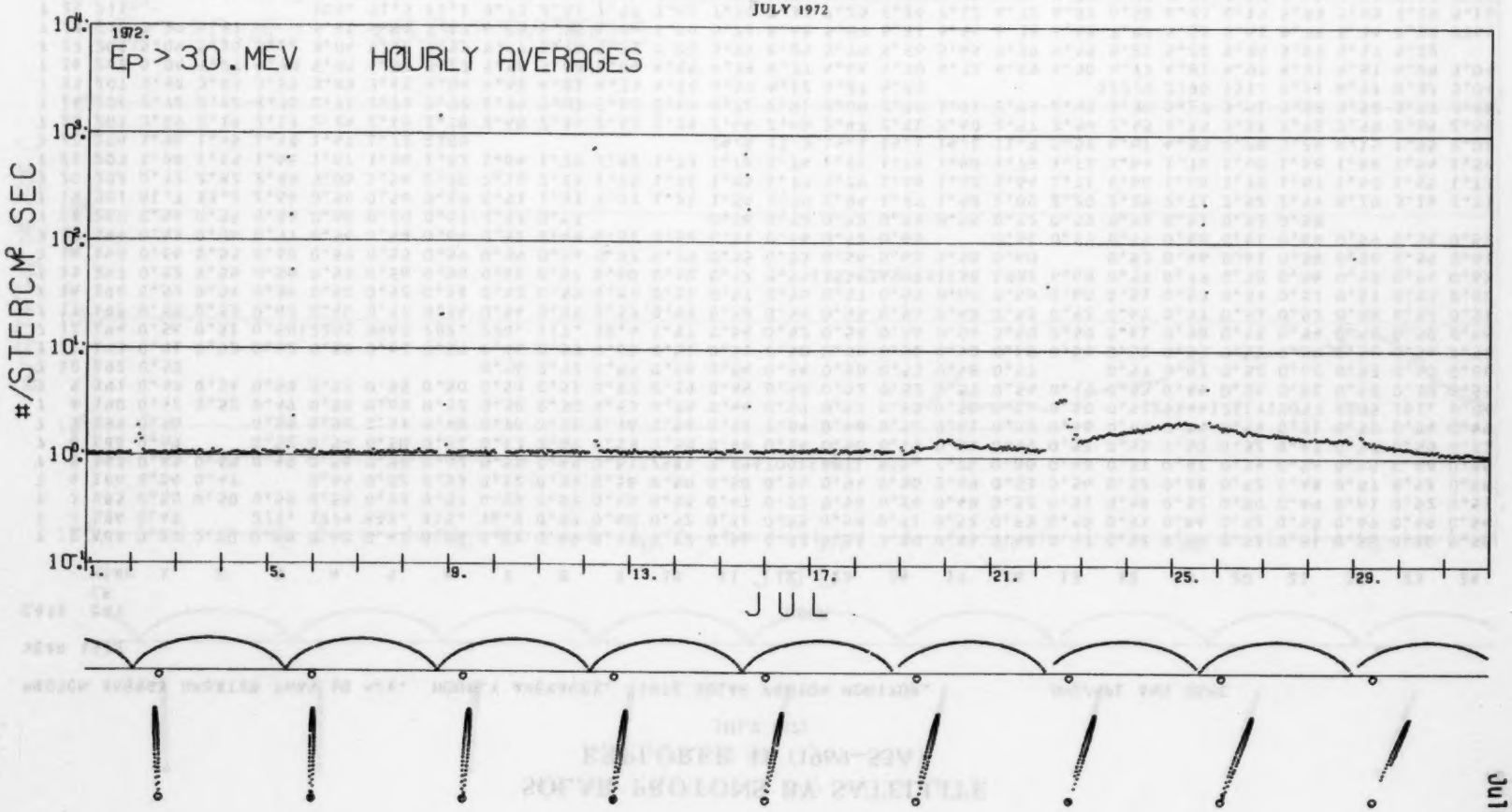
PROTON ENERGY GREATER THAN 30 MEV. HOURLY AVERAGES. IMPG SOLAR PROTON MONITOR. JHU/APL AND GSFC

YEAR 1972

DATE	DAY OF YEAR	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
7 1	183	1.02	1.06	1.03	1.06	1.04	1.04	1.02	1.05	1.05	1.02	1.02	1.04	1.05	1.03	1.04	1.00	1.05	1.08	1.07	1.06	1.03	1.06	1.05	1.08
7 2	184	1.00		1.32	1.89	1.55	1.41	1.11	1.05	1.05	1.08	1.07	1.07	1.08	1.05	1.04	1.05	1.05	1.07	1.08	1.02	1.04	1.08	1.05	1.08
7 3	185	1.04	1.10	1.10	1.07	1.08	1.07	1.08	1.07	1.09	1.07	1.02	1.08	1.11	1.10	1.04	1.03	1.04	1.04	1.06	1.14	1.07	1.07	1.08	1.11
7 4	186	1.02	1.02		1.04	1.02	1.08	1.08	1.10	1.09	1.07	1.03	1.07	1.05	1.06	1.04	1.05	1.10	1.07	1.06	1.03	1.02	1.11	1.11	1.08
7 5	187	1.07	1.09	1.06	1.07	1.04	1.07	1.08	1.06	1.08	589.	1.19	175.	53.4	2.34	1.06	1.10	1.08	1.08	1.07	1.10	1.08	1.08	1.07	1.07
7 6	188	1.13		1.00	1.08	1.08	1.04	1.04	1.05	1.05	1.09	1.04	1.07	1.07	1.08	1.06	1.07	1.07	1.08	1.11	1.07	1.06	1.10	1.06	1.06
7 7	189	1.07		1.05	1.08	1.07	1.08	1.07	1.05	1.14	1.05	1.09	1.07	1.10	1.10	1.06	1.07	1.11	1.09	1.05	1.10	1.08	1.09	1.12	1.09
7 8	190	1.10	1.07	1.11	1.08	1.07	1.06	1.10	1.08	1.16	1.09	1.08	1.06	1.10	1.09	1.11	1.10	1.06	1.09	1472	20.7	20.9	2.98	1.27	1.08
7 9	191	1.10	1.06	1.08	1.08	1.06	1.10	1.09	1.10	1.11	1.11	1.07	1.09	1.08	1.07	1.09	1.08	1.10	1.08	1.08	1.11	1.06	1.04	1.10	1.13
7 10	192	1.07						1.09	1.10	1.09	1.06	1.08	1.10	1.09	1.11	1.12	1.10		1.13	1.11	1.06	1.11	1.08	1.12	1.08
7 11	193	1.12	1.12	1.08	1.05	1.14	1.11	1.14	1.07	1.10	1.11	1.11	1.12	1.12	1.09	1.12	1.12	1.11	1.14	1.08	1.13	1.11	1.06	1.11	1.13
7 12	194	1.09	1.10	1.10	719.	743.	1.42	1.40	1.27	1.14	1.13	1.11	1.11	1.16	1.13	1.09	1.13	1.14	1.14	1.11	1.07	1.12	1.11	1.07	1.13
7 13	195	1.10	1.09	1.16	1.12	1.10	1.09	1.10	1.11	1.12	1.11	1.07	1.11	1.11	1.14	1.10	1.07	1.12	1.09	1.10	1.11	1.09	1.13	1.13	1.08
7 14	196	1.12	1.10	1.12	1.13	1.10	1.14	1.11	1.14	1.09	1.16	1.14	1.15	1.14	1.14	1.17	1.12	1.14	1.14	1.07	1.11	1.11	1.15	1.12	1.13
7 15	197	1.14	1.10	1.08	1.17	1.16	1.17	1.15	1.20	1.12	1.14	1.16	1.13	668.	430.	206.	3.05	1.15	1.16	1.11	1.15	1.13	1.13	1.13	1.11
7 16	198	1.17	1.15	1.15	1.19	1.16	1.18	1.19	1.18	1.16	1.17	1.18	1.13	1.16	1.19	1.16	1.17		1.16	1.17	1.12	1.18	1.15	1.18	1.12
7 17	199	1.16	1.20	1.17	1.22	1.15	1.17	1.16	1.16	1.19	1.16	1.14	1.15	1.16	1.21		1.11	1.18	1.16	1.17	1.19	1.15	1.12	1.16	1.18
7 18	200	1.16	1.17	1.18	1.14	1.17	1.23	1.18	1.20			1.16	1.19	1.18	1.16	1.11	1.15	1.15	1.16	1.16	1.15	1.15			
7 19	201	1.27	1.18	1.10	1.12	1.12	1.16	1.19	1.17	1.27	1.29	1.23	1.22	1.26	1.26	1.26	1.27	1.28	1.30	1.40	1.40	1.46	1.49	1.48	1.43
7 20	202	1.45	1.53	1.49	1.50	1.42	1.36	1.36	1.36	1.27	1.33	1.29	1.30	1.32	1.32	1.34	1.31	1.30	1.29	1.26	1.26	1.29	1.30	1.35	1.28
7 21	203	1.24	1.25	1.25	1.23	1.25	1.29	1.23	1.30	1.22	1.30	1.24	1.23	1.30	1.23	1.24	1.26	1.25	1.25	1.16	1.23	1.22	1.19	1.21	1.18
7 22	204	1.23	1.16	1.19	1.19	1.22	39.9					3.35	3.32	3.54	3.41	3.60	3.52	2.02	2.38	2.00	1.54	1.72	1.69	1.43	1.49
7 23	205	1.42	1.49	1.47	1.49	1.51	1.57	1.63	1.59	1.56	1.65	1.65	1.62	1.67	1.69	1.75	1.73	1.69	1.71	1.67	1.70	1.74	1.70	1.79	1.76
7 24	206	1.79	1.79	1.79	1.85	1.80	1.91	1.84	1.86	1.80	1.89	1.90	1.91	1.89	2.03	1.97	2.00	2.07	1.95	2.03	2.08	2.15	2.13	2.13	2.11
7 25	207	2.01	2.12	2.15	2.20	2.10	2.15	2.22	2.15	2.13	2.15	2.11	2.11	2.07	2.05		154.	230.	36.1	4.47	2.21	2.05	2.04	2.05	2.11
7 26	208	2.00	1.97	1.85	1.97	1.93	1.87	1.91	1.92	1.88	1.88	1.79	1.81	1.74	1.70	1.68	1.78	1.83	1.78	1.71	1.75	1.74	1.69	1.69	1.72
7 27	209	1.68	1.67	1.66	1.64	1.66	1.73	1.62	1.70	1.64	1.64	1.64	1.63	1.67	1.62	1.56	1.61	1.57	1.55	1.59	1.53	1.55	1.51	1.50	
7 28	210	1.53	1.51		1.57	1.51	1.50	1.53	1.50	1.50	1.57	1.52	1.46	1.48	1.46	1.50	1.49	1.54	1.52	1.49	1.56	1.51	1.43	1.45	74.5
7 29	211				1.62	1.58	1.47	1.44	1.44	1.36	1.36	1.43	1.34	1.38	1.37	1.35	1.34	1.32	1.27	1.34	1.29	1.31	1.23	1.27	1.26
7 30	212	1.27	1.24	1.23	1.27	1.24	1.25	1.23	1.19	1.17	1.20	1.18	1.18	1.17	1.17	1.18	1.14	1.14	1.19	1.14	1.17	1.18	1.10	1.13	1.12
7 31	213	1.09	1.12	1.12	1.09	1.08	1.10	1.12	1.10	1.07	1.09	1.10	1.13	1.13	1.12	1.12	1.09	1.08	1.09	1.09	1.06	1.09	1.03	1.07	1.07

SOLAR PROTONS BY SATELLITE
EXPLORER 41 (1969-53A)

JULY 1972



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Jul 72

SOLAR PROTONS BY SATELLITE
EXPLORER 41 (1969–53A)
JULY 1972

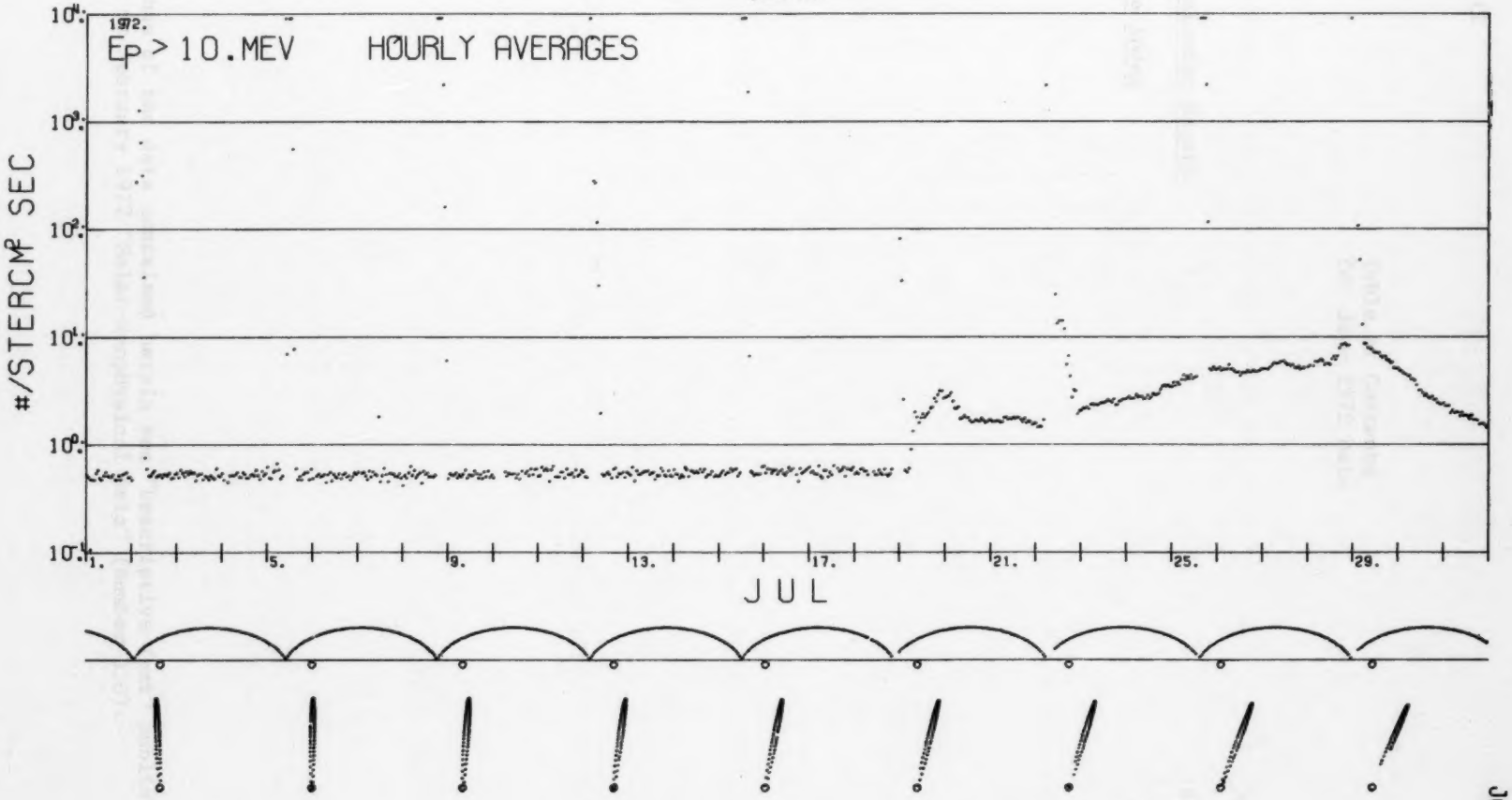
PROTON ENERGY GREATER THAN 10 MEV. HOURLY AVERAGES. IMPG SOLAR PROTON MONITOR. JHU/APL AND GSFC

YEAR 1972

CATE	DAY OF YEAR	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
7 1	183	0.53	0.50	0.48	0.47	0.47	0.54	0.58	0.49	0.47	0.52	0.56	0.52	0.51	0.50	0.53	0.48	0.47	0.52	0.48	0.53	0.54	0.56	0.50	0.50
7 2	184	0.47		277.	1279	642.	315.	36.3	0.77	0.60	0.52	0.51	0.55	0.58	0.51	0.52	0.53	0.50	0.53	0.54	0.52	0.55	0.49	0.49	0.54
7 3	185	0.55	0.50	0.59	0.55	0.51	0.57	0.53	0.57	0.55	0.55	0.47	0.52	0.54	0.54	0.48	0.52	0.51	0.48	0.52	0.50	0.49	0.61	0.52	0.51
7 4	186	0.54	0.47		0.45	0.52	0.53	0.52	0.53	0.56	0.50	0.50	0.56	0.54	0.50	0.49	0.53	0.54	0.52	0.58	0.52	0.48	0.57	0.53	0.55
7 5	187	0.63	0.50	0.49	0.56	0.58	0.67	0.59	0.49	0.5132988		7.054700118871			555.	7.79	0.60	0.48	0.51	0.47	0.54	0.56	0.55	0.48	0.59
7 6	188	0.49		0.52	0.54	0.50	0.51	0.53	0.45	0.53	0.55	0.46	0.54	0.50	0.49	0.54	0.49	0.53	0.55	0.50	0.52	0.47	0.50	0.55	0.53
7 7	189	0.56		0.55	0.56	0.51	0.48	0.58	0.51	0.56	0.54	0.52	1.84	0.46	0.52	0.61	0.53	0.46	0.55	0.54	0.54	0.51	0.50	0.54	0.49
7 8	190	0.42	0.52	0.49	0.55	0.63	0.52	0.58	0.50	0.53	0.55	0.44	0.57	0.53	0.55	0.50	0.51	0.50	0.52293441211715097				2205	161.	6.06
7 9	191	0.49	0.54	0.53	0.53	0.55	0.50	0.53	0.51	0.53	0.59	0.49	0.52	0.52	0.52	0.57	0.54	0.49	0.53	0.49	0.56	0.51	0.58	0.50	0.53
7 10	192	0.50						0.56	0.52	0.55	0.54	0.54	0.54	0.50	0.53	0.48	0.57		0.55	0.57	0.52	0.60	0.53	0.60	0.60
7 11	193	0.51	0.52	0.62	0.58	0.61	0.59	0.46	0.59	0.63	0.51	0.51	0.50	0.56	0.56	0.50	0.60	0.54	0.53	0.55	0.51	0.59	0.52	0.54	0.58
7 12	194	0.56	0.51	0.5012205		5969	282.	270.	117.	30.4	1.97	0.54	0.52	0.54	0.56	0.54	0.50	0.60	0.61	0.50	0.55	0.54	0.56	0.50	0.56
7 13	195	0.55	0.52	0.63	0.46	0.58	0.54	0.54	0.55	0.57	0.58	0.58	0.54	0.55	0.56	0.48	0.52	0.52	0.61	0.57	0.53	0.52	0.58	0.52	0.51
7 14	196	0.59	0.54	0.54	0.50	0.52	0.51	0.62	0.59	0.51	0.58	0.57	0.55	0.57	0.55	0.60	0.56	0.60	0.51	0.53	0.53	0.57	0.51	0.53	0.52
7 15	197	0.52	0.55	0.58	0.53	0.56	0.56	0.61	0.57	0.60	0.60	0.52	0.551353836509311138				1882	6.68	0.57	0.55	0.52	0.54	0.53	0.54	0.63
7 16	198	0.64	0.55	0.60	0.59	0.55	0.59	0.59	0.54	0.57	0.59	0.55	0.53	0.56	0.62	0.58	0.60		0.53	0.46	0.61	0.54	0.56	0.59	0.61
7 17	199	0.63	0.56	0.57	0.54	0.54	0.64	0.52	0.49	0.58	0.58	0.51	0.56	0.52	0.65		0.61	0.57	0.59	0.62	0.51	0.60	0.59	0.58	0.62
7 18	200	0.54	0.55	0.54	0.60	0.60	0.57	0.57	0.53			0.56	0.52	0.52	0.58	0.55	0.52	0.59	0.53	0.51	0.53	0.59			
7 19	201	81.7	33.2	2.64	0.58	0.56	0.60	0.91	1.33	2.01	1.81	1.59	1.79	1.94	1.79	1.90	2.00	2.20	2.25	2.71	2.52	2.94	3.19	3.16	2.71
7 20	202	2.77	2.82	2.86	3.05	2.54	2.20	2.16	2.23	1.75	1.76	1.85	1.79	1.79	1.68	1.62	1.64	1.71	1.66	1.65	1.76	1.67	1.60	1.65	1.71
7 21	203	1.68	1.65	1.65	1.67	1.66	1.62	1.64	1.79	1.81	1.73	1.76	1.74	1.81	1.76	1.80	1.78	1.72	1.64	1.76	1.60	1.66	1.64	1.54	1.58
7 22	204	1.56	1.45	1.48	1.47	1.72	2185					24.8	13.3	14.1	14.1	14.1	11.9	5.58	6.67	4.33	2.78	3.26	3.16	1.95	2.08
7 23	205	2.09	2.19	2.17	2.24	2.15	2.38	2.40	2.34	2.38	2.35	2.44	2.46	2.47	2.51	2.60	2.57	2.50	2.65	2.35	2.37	2.53	2.59	2.65	2.66
7 24	206	2.72	2.82	2.70	2.71	2.71	2.92	2.79	2.83	2.81	2.68	2.72	2.91	2.68	2.80	3.01	2.93	2.93	3.00	3.27	3.51	3.58	3.52	3.57	3.48
7 25	207	3.48	3.83	3.55	3.85	3.65	4.04	4.48	4.01	4.33	4.14	4.49	4.12	4.27	4.32				32029	2195	117.	5.11	4.97	5.32	5.04
7 26	208	5.04	5.27	4.90	5.05	4.99	5.13	5.56	5.08	5.04	4.85	4.73	4.77	4.44	4.70	4.72	4.69	4.90	4.77	4.81	4.97	4.81	4.81	4.89	5.04
7 27	209	5.09	5.10	5.12	5.04	5.26	5.52	5.77	5.74	5.71	5.82	5.95	6.05	5.79	5.56	5.65	5.39	5.55	5.21	5.22	5.36	5.07	5.17	5.22	
7 28	210	5.29	5.47		5.41	5.94	5.87	6.08	6.25	6.04	5.58	5.72	5.65	5.59	6.31	6.66	6.28	6.68	7.97	8.56	8.61	8.75	8.34	8.38	9784
7 29	211				108.	51.9	13.1	8.73	8.62	7.95	7.93	7.74	7.32	7.25	7.24	7.12	6.72	6.51	6.62	6.21	6.15	5.83	5.85	5.19	5.16
7 30	212	5.14	4.89	4.81	4.62	4.56	4.43	4.38	4.12	4.05	3.94	3.60	3.21	3.23	3.04	2.83	2.95	2.79	2.72	2.81	2.63	2.62	2.47	2.42	2.38
7 31	213	2.43	2.31	2.31	2.30	1.98	2.09	1.98	2.02	1.99	1.84	2.00	1.87	1.88	1.84	1.75	1.86	1.71	1.70	1.68	1.54	1.56	1.57	1.51	1.44

SOLAR PROTONS BY SATELLITE
EXPLORER 41 (1969-53A)

JULY 1972



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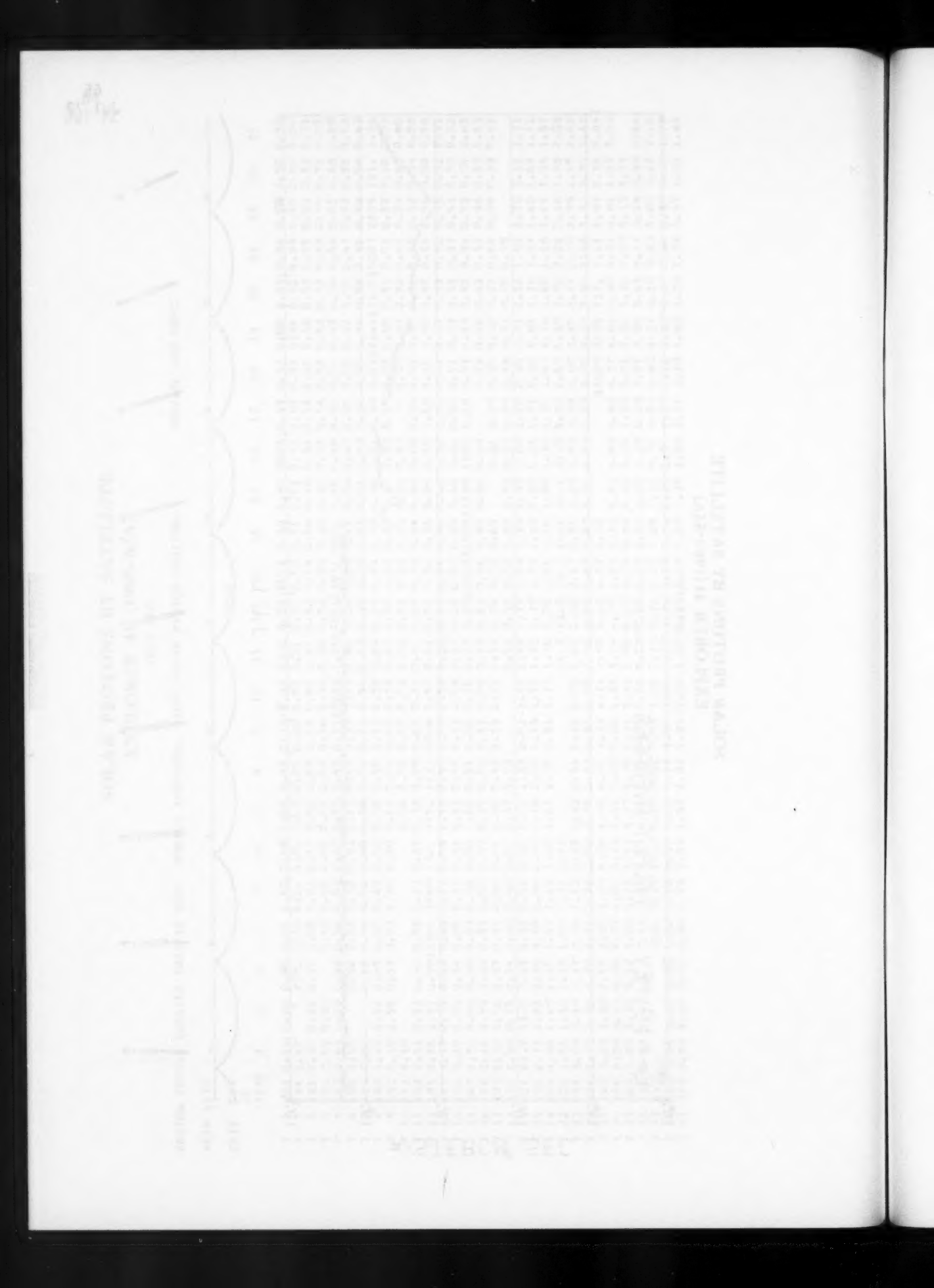
Jul 72



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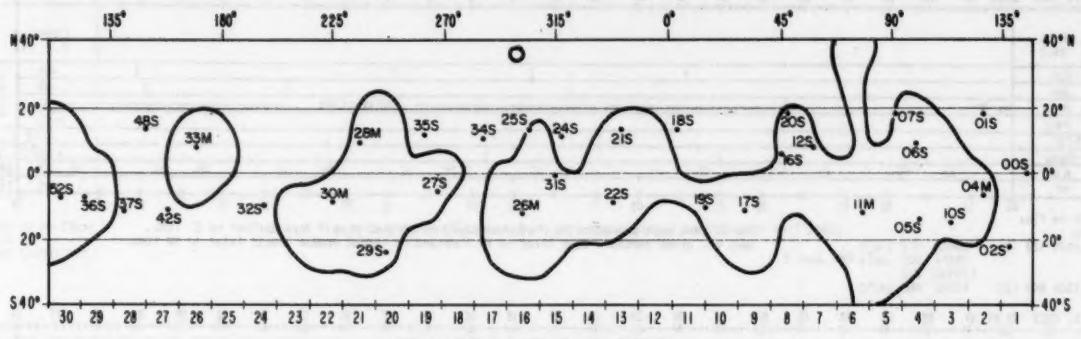
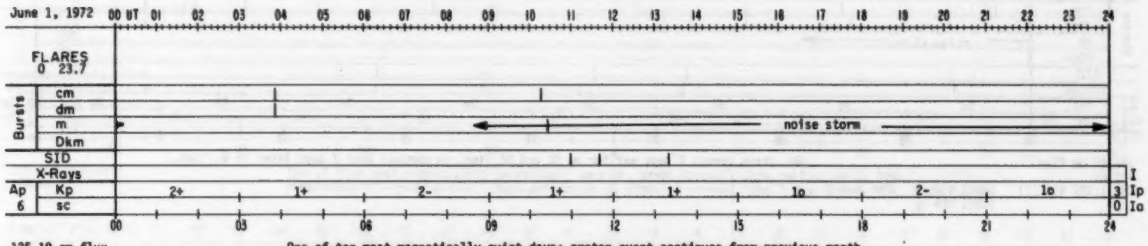
For explanations of the data contained herein see "Descriptive Text" published as supplement to February 1972 "Solar-Geophysical Data" (Number 330).

ABBREVIATED CALENDAR RECORD

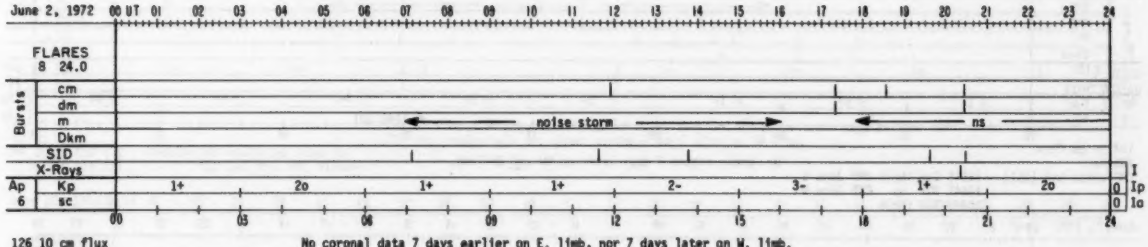
JUNE 1972





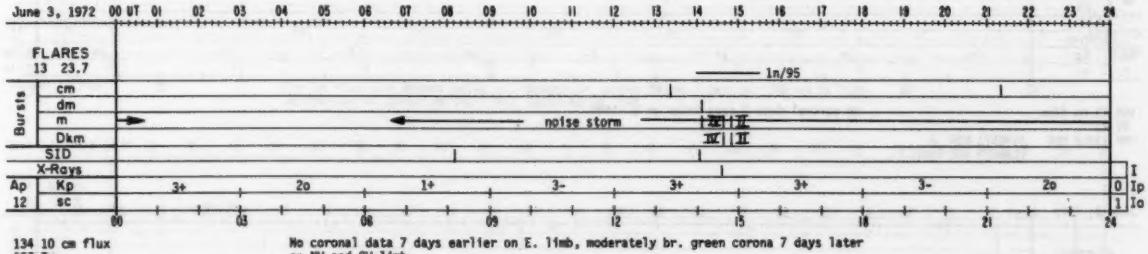
125 10 cm flux
78 Rz
CMP 11900 N00
(11902) S22

One of ten most magnetically quiet days; proton event continues from previous month on <10 Mev counter on Explorer 41, decreasing to near normal June 5; no coronal data / days earlier on E. limb, nor 7 days later on W. limb.



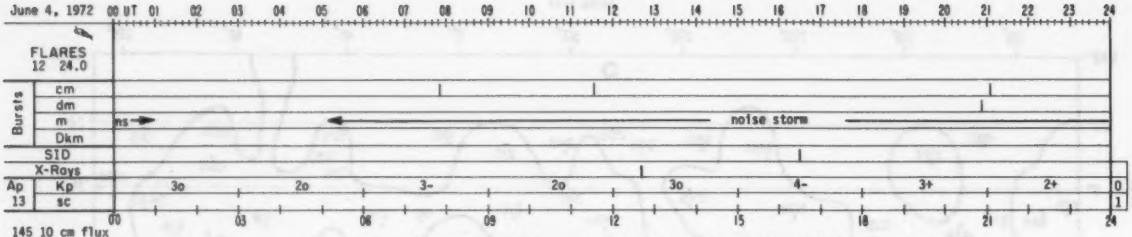
126 10 cm flux
96 Rz
CMP 11901 N19 (18840) N19 (αp)1
11904 S07 (2) 18846 S06 (β)4
(11915) N47

No coronal data 7 days earlier on E. limb, nor 7 days later on W. limb.



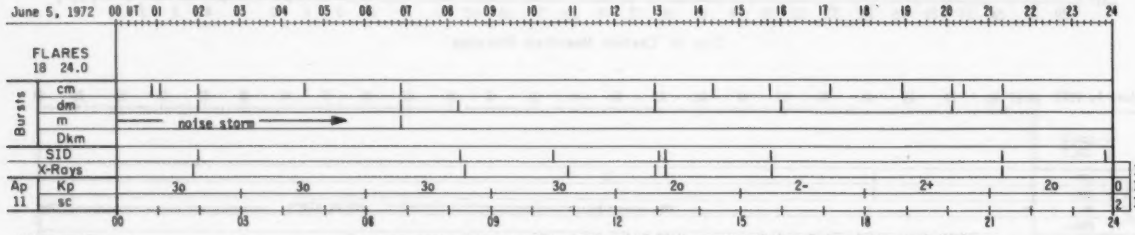
134 10 cm flux
102 Rz
CMP 11910 S15 (3) 18848 S15 (βf)3

No coronal data 7 days earlier on E. limb, moderately br. green corona 7 days later on NW and SW limb.



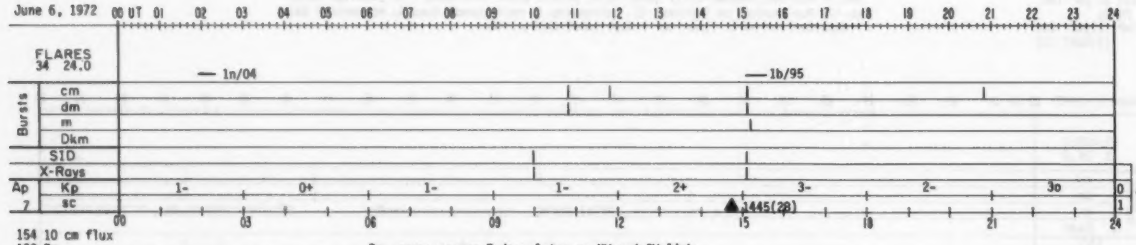
145 10 cm flux
116 Rz
CMP 11905 S14 (3) 18842 S12 (αp)5
18854 S05 (αp)1 CMP June 5
(18856) S16
11906 N09 (2) 18850 N09 (βf)3

One of five most magnetically disturbed days; no coronal data 7 days earlier on E. limb, very br. green corona 7 days later on NW limb and br. green corona 7 days later on SW limb.



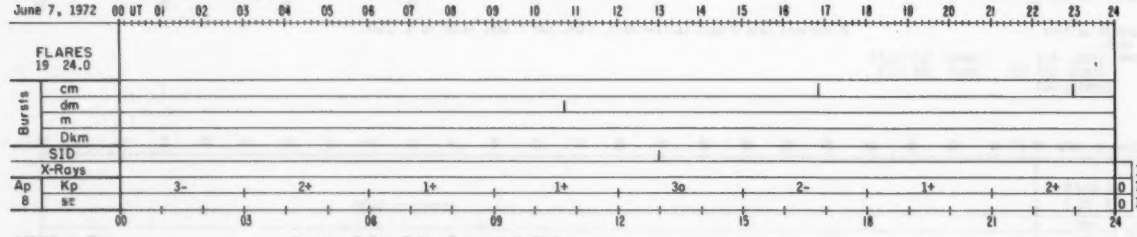
160 10 cm flux
132 Rz
CMP 11907 N18 (2) 18843 N16 αp CMP June 4
18853 N16 αp

Br. green corona 7 days earlier on NE and SE limb, no coronal data 7 days later on W. limb.



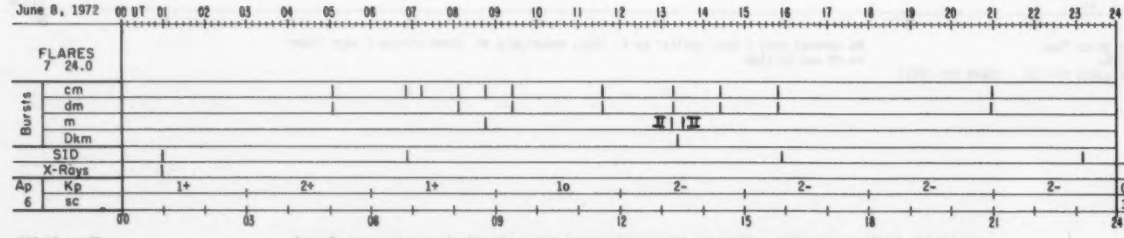
154 10 cm flux
103 Rz
CMP 11911 S12 (3A1) 18845 S15 (βp)5 CMP June 5
18847 S08 αp CMP June 5
18849 S08 (βp)6

Br. green corona 7 days later on NW and SW limb.



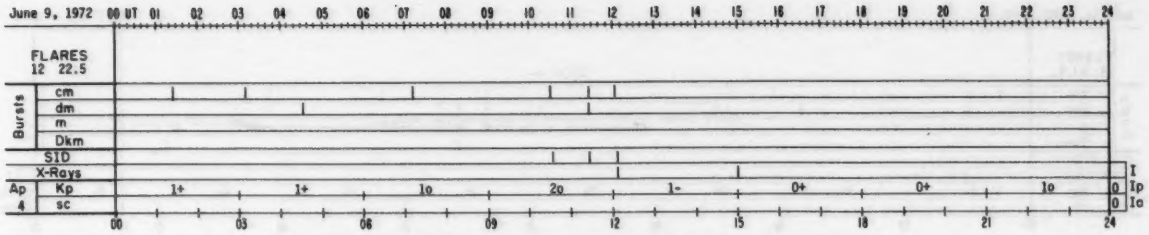
148 10 cm flux
95 Rz
CMP 11912 N08 (18851) N10 β
(18852) N08 (βp)2

No coronal data 7 days later on W. limb.



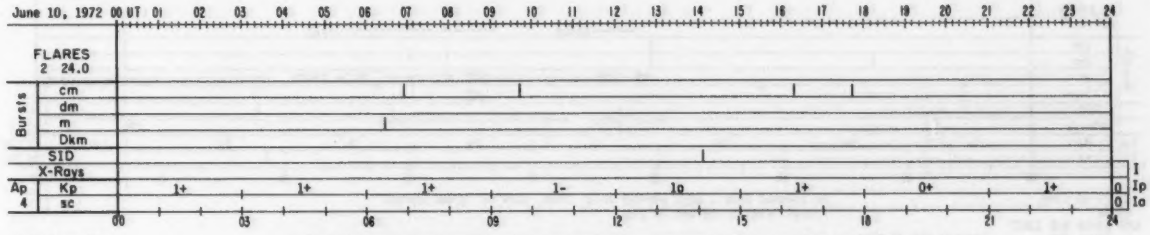
146 10 cm flux
87 Rz
CMP 11920 N19 18857 N20 (βf)2
11916 N06 18855 N07 (αp)1

One of ten most magnetically disturbed days; proton event on >10 Mev, >30 Mev and >60 Mev counters on Explorer 41 increased rapidly during last half of day and returned to normal on June 11; very br. green corona 7 days earlier on NE limb, moderately br. green corona 7 days earlier on SE limb, no coronal data 7 days later on W. limb.



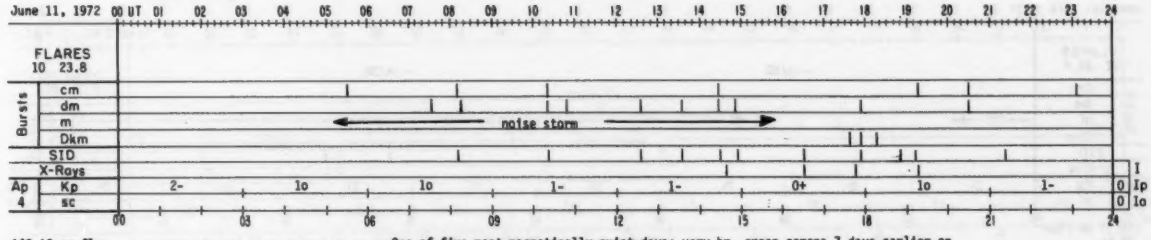
145 10 cm flux
76 Rz
CMP (11917) S11

One of five most magnetically quiet days; no coronal data 7 days earlier on E limb, nor 7 days later on W. limb.



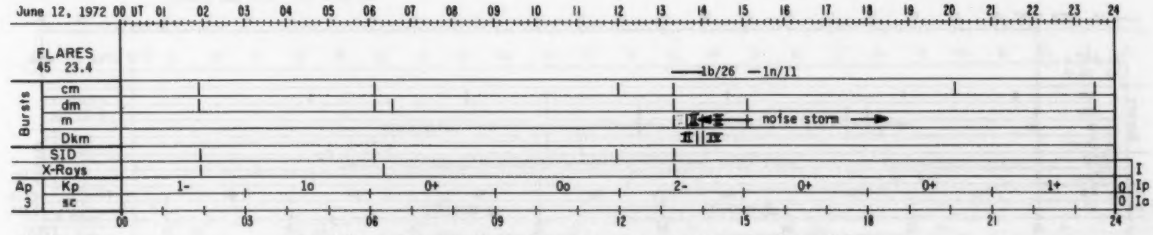
135 10 cm flux
68 Rz

One of five most magnetically quiet days; very br. green corona 7 days earlier on SE limb, moderately br. green corona 7 days earlier on NE limb, no coronal data 7 days later on W. limb.



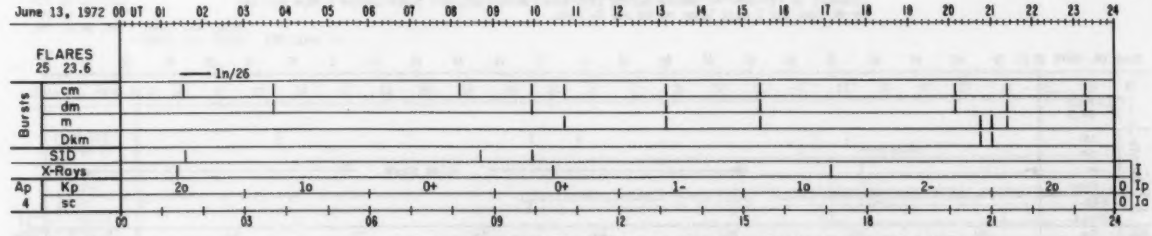
140 10 cm flux
63 Rz
CMP 11919 S10 (3) (18858) S09 (βp)2 CMP June 10
11918 N14 (2) N07 (no obs. Mt. Wilson)

One of five most magnetically quiet days; very br. green corona 7 days earlier on SE limb, moderately br. green corona 7 days later on SW limb.



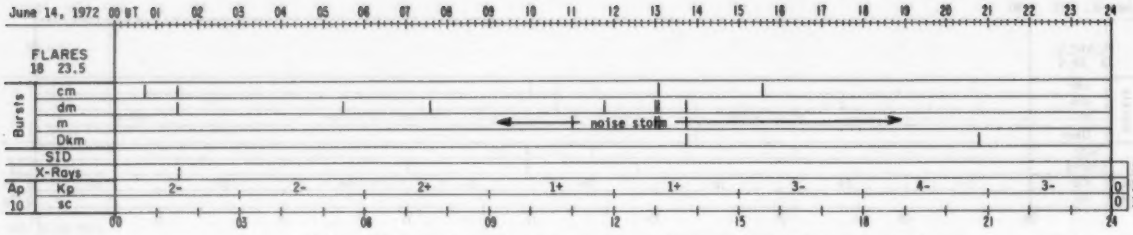
145 10 cm flux
48 Rz

One of five most magnetically quiet days; br. green corona 7 days earlier on SE limb, moderately br. green corona 7 days later on SW limb.



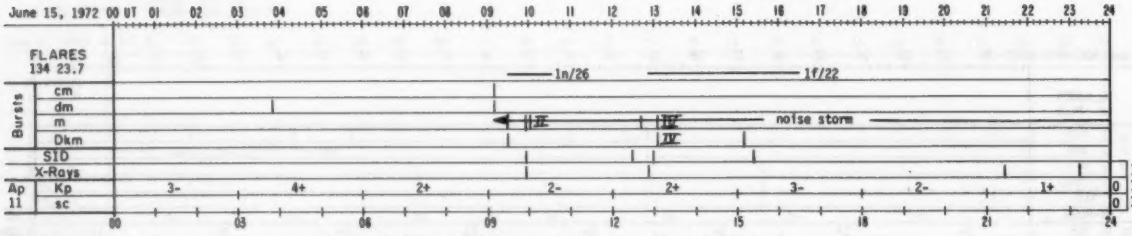
135 10 cm flux
43 Rz
CMP 11921 N14 (6) N15 (no obs. Mt. Wilson)
11922 S09 (3,4&1) 18863 S13 β
(18864) S10 α CMP June 14
18865 S07 βp CMP June 15

One of ten most magnetically quiet days; moderately br. green corona 7 days earlier on NE and SE limb, very br. green corona 7 days later on SW limb.



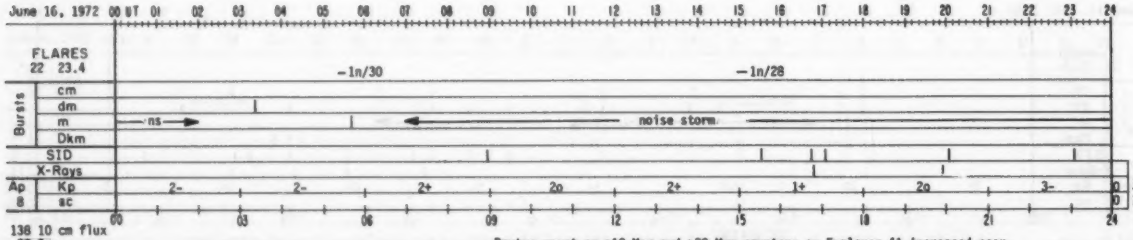
132 10 cm flux
60 Rz

No coronal data 7 days earlier on E. limb, nor 7 days later on W. limb.



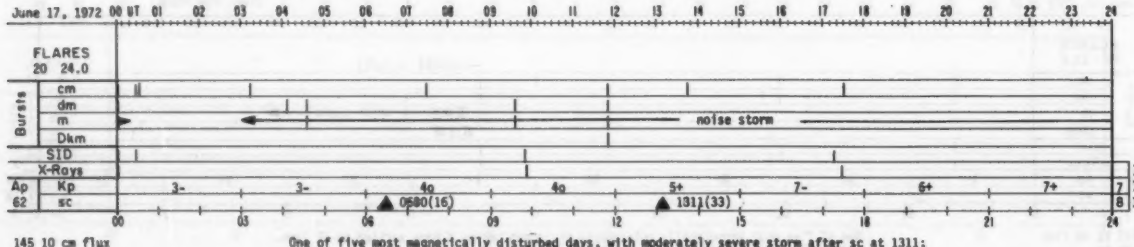
135 10 cm flux
88 Rz
CMP 11924 N12 (2&3)
11931 N00 (18868) N00 (Bp)1

No coronal data 7 days earlier on E. limb, very br. green corona 7 days later on NW and SW limb.



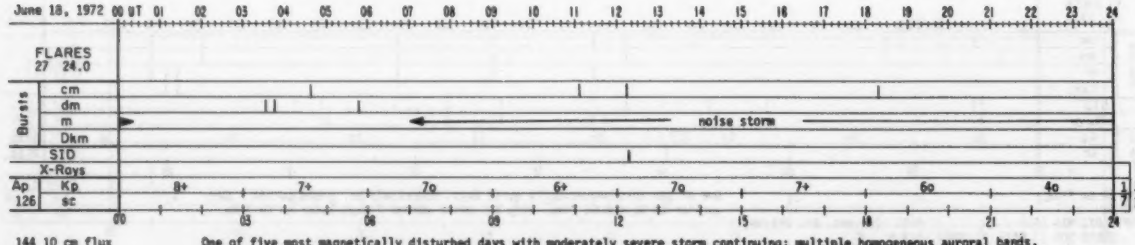
138 10 cm flux
96 Rz
CMP 11925 N14 (3) 18862 N11 (αp)1
11926 S12 (3) 18859 S14 (βp)2 (18869) S16 (αp)1 CMP June 17
18860 S15 (αp)6 (18873) S11 (βp)3 CMP June 17
18861 S11 (δ)5

Proton event on >10 Mev and >30 Mev counters on Explorer 41 increased near beginning of day, peaked on June 17 during 18th hour and returned to normal by June 21; no coronal data 7 days earlier on E. limb, br. green corona 7 days later on SW limb and moderately br. green corona 7 days later on NW limb.



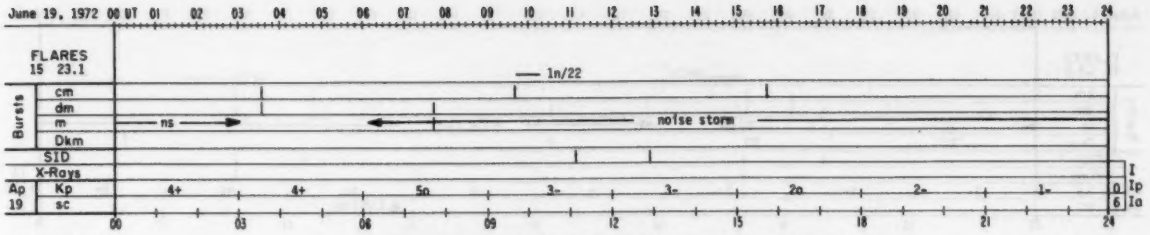
145 10 cm flux
101 Rz
CMP (11934) N11 (18874) N10 Bf

One of five most magnetically disturbed days, with moderately severe storm after sc at 1311; cosmic ray decrease of about 6% begins abruptly near middle of day, reaches a maximum at beginning of day on June 18 and gradually returns to normal by end of month; proton event on counters on Explorer 41 peaked during 18th hour; moderately br. green corona 7 days earlier on NE limb and 7 days later on NW and SW limb.



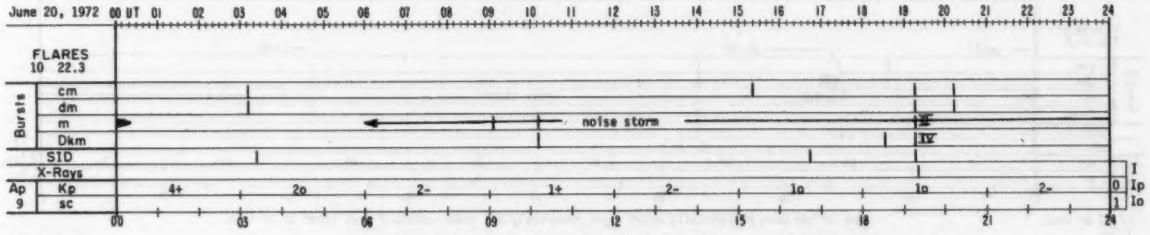
144 10 cm flux
86 Rz

One of five most magnetically disturbed days with moderately severe storm continuing; multiple homogeneous auroral bands, bases overhead to ϕ = 69° to 67°, reported from aircraft at 0215 over Atlantic, cloudy over W. Europe; auroral glow over W. Europe on northern horizon visible to ϕ = 55° at 2115; cosmic ray decrease which began on previous days reaches a maximum at beginning of day; moderately br. green corona 7 days earlier on NE limb, and 7 days later on NW and SW limb.



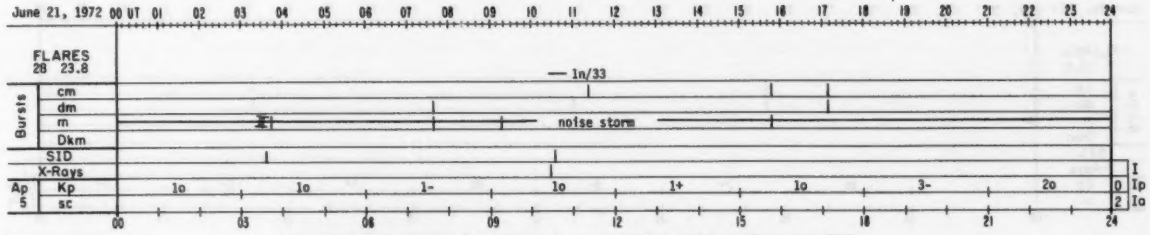
139 10 cm flux
83 Rz
CMP 11927 S05 18866 S04 (βp)3 CMP June 18
(11935) N12 (18878) N11 (βp 3

One of five most magnetically disturbed days with moderate activity to 0900; no coronal data 7 days earlier on E. limb.



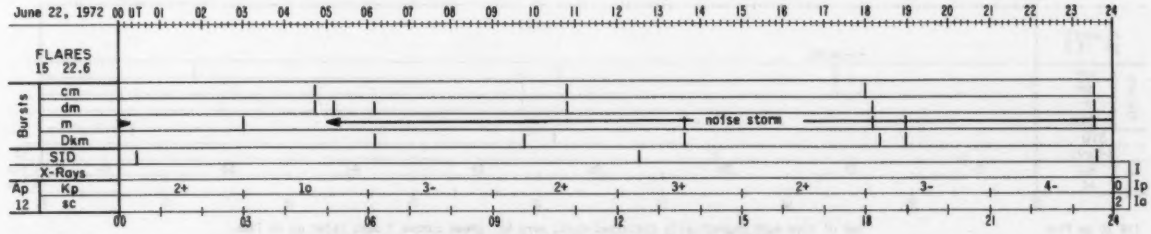
138 10 cm flux
92 Rz
CMP 11929 S23 (18870) S26 (αp)1
18872 S24 β

Auroral glow on northern horizon over W. Europe with rays at 0100, visible to $\phi = 55°$ 0045-0130; moderately br. green corona 7 days later on NW and SW limb.



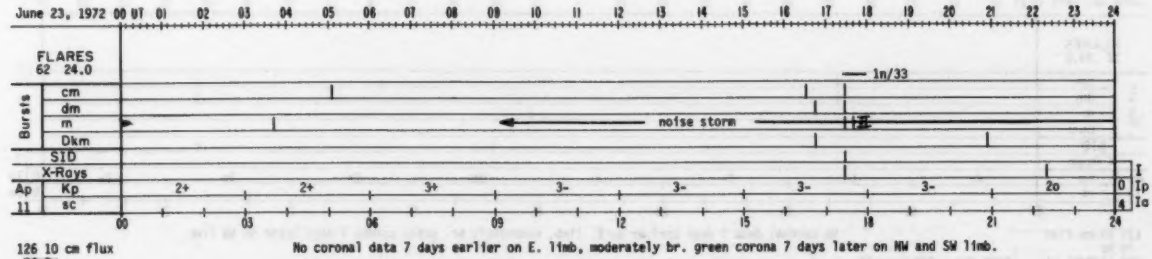
135 10 cm flux
96 Rz
CMP 11928 N10 (2) 18867 N09 (βp)5
(18879) N15 (β)1 CMP June 20

One of ten most magnetically quiet days; no coronal data 7 days earlier on E. limb, nor 7 days later on W. limb.



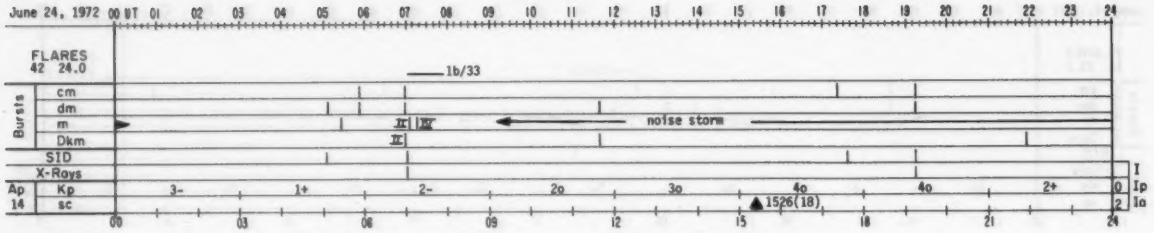
131 10 cm flux
87 Rz
CMP 11930 S09 18871 S09 (βγ)5
18875 S11 (βp)4 CMP June 23

No coronal data 7 days earlier on E. limb, nor 7 days later on W. limb.



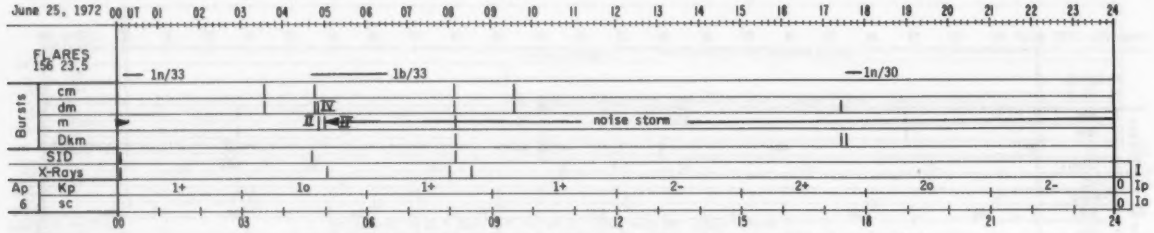
126 10 cm flux
84 Rz

No coronal data 7 days earlier on E. limb, moderately br. green corona 7 days later on NW and SW limb.



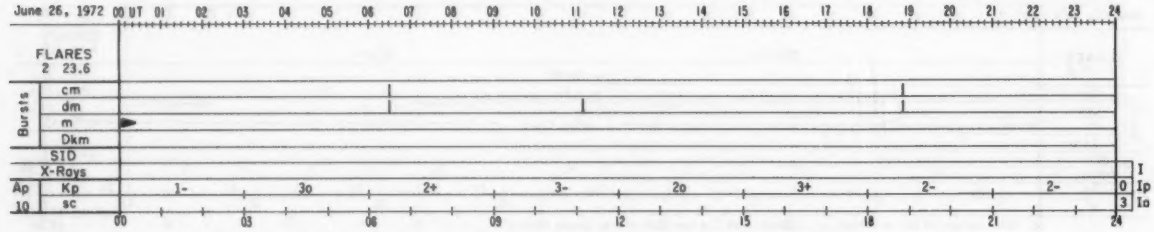
124 10 cm flux
79 Rz
CMP 11932 S10 (7)

No coronal data 7 days earlier on E. limb, nor 7 days later on W. limb.



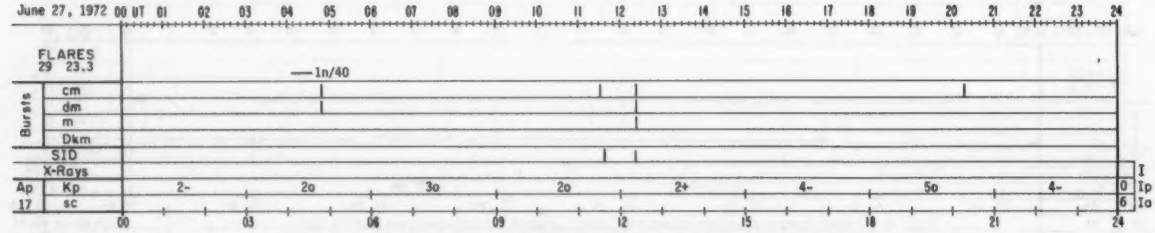
122 10 cm flux
77 Rz

One of ten most magnetically quiet days; moderately br. green corona 7 days later on NW limb.



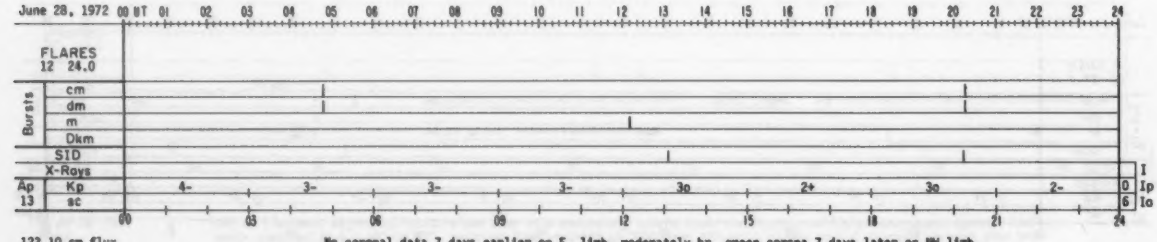
117 10 cm flux
73 Rz
CMp 11933 N08 (3) 18876 N09 (βf)4
18877 N05 (αp)4

Moderately br. green corona 7 days earlier on NE limb and 7 days later on NW limb.



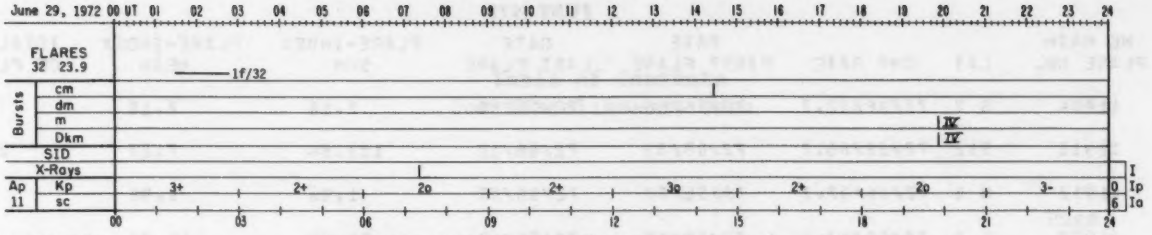
118 10 cm flux
66 Rz
CMP 11942 S11

One of five most magnetically disturbed days; very br. green corona 7 days later on NW limb, moderately br. green corona 7 days earlier on NE limb and 7 days later on SW limb.



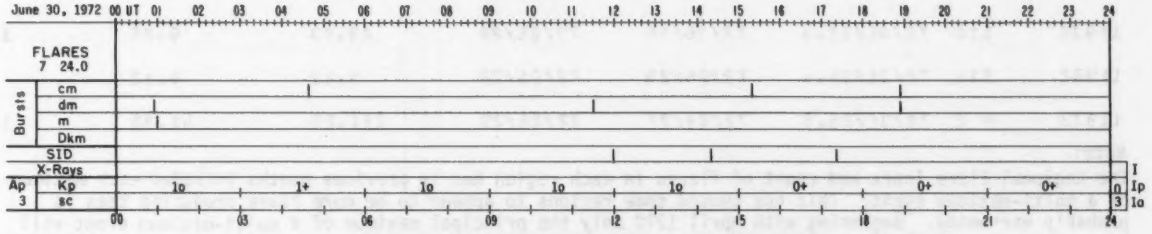
123 10 cm flux
78 Rz
CMP (11948) N14 18890 N13 CMP June 27
(11937) S22

No coronal data 7 days earlier on E. limb, moderately br. green corona 7 days later on NW limb.



128 10 cm flux
73 Rz
CMP 11936 S07 (3) (18880) S09 (ap)3
18885 S08 βf

Br. green corona 7 days earlier on SE limb, moderately br. green corona 7 days earlier on NE limb, no coronal data 7 days later on W. limb.



130 10 cm flux
73 Rz
CMP (11952) S07

One of five most magnetically quiet days, extremely quiet after 1500; very br. green corona 7 days later on NW limb, br. green corona 7 days later on SW limb, moderately br. green corona 7 days earlier on NE and SE limb.

REGIONAL FLARE INDEX

JUNE 1972

MC MATH PLAGE NO.	LAT	CMP DATE	DATE FIRST FLARE	DATE LAST FLARE	FLARE-INDEX SUM	FLARE-INDEX MEAN	TOTAL NO. OF FLARES
11904	S 7	72/06/02.7	72/06/06	72/06/06	7.10	7.10	1
11911	S12	72/06/05.2	72/05/30	72/06/12	101.84	7.27	20
11912	N 8	72/06/07.7	72/06/03	72/06/03	1.96	1.96	1
11922	S 8	72/06/13.6	72/06/15	72/06/19	76.42	15.28	3
11926	S13	72/06/16.9	72/06/09	72/06/21	135.45	10.42	20
11928	N10	72/06/21.4	72/06/14	72/06/26	23.20	1.78	6
11930	S10	72/06/22.4	72/06/15	72/06/28	89.00	6.85	18
11932	S10	72/06/24.4	72/06/29	72/06/29	8.12	8.12	1
11933	N 8	72/06/26.5	72/06/20	72/06/25	251.25	41.88	12

Note:
The Regional Flare Index and count of flares in each region has in previous months included each maximum of a multi-maximum event. This has caused some regions to appear to be more flare producing than is probably warranted. Beginning with April 1972 only the principal maximum of a multi-maximum event will be used in the calculation. Also note that only the Confirmed Events as selected for the "I.A.U. Quarterly Bulletin on Solar Activity" are included in the calculation.

Because of differences in method of calculation, the dates of Central Meridian Passage for the McMath Plage Regions vary somewhat from those given elsewhere. Any region not listed here produced no confirmed flares during its disk passage.

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for Miscellaneous Data

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For explanations of the data contained herein see "Descriptive Text" published as supplement to February 1972 "Solar-Geophysical Data" (Number 330).

SOLAR X - RAY FLARES (2 - 12A°)
SATELLITE EXPLORER 35
MAY 1972

University of Iowa

Date 1972	Onset U.T.	Maximum U.T.	Peak-Ratio to Quiet Sun	Remarks and Values of Maximum Flux F (2-12 A°) in erg $(cm^2\ sec)^{-1}$
3 May	1510	1525	4-	
4 May	1453	1511	5	
11 May	1723	1727	4-	Rapid rise, rapid decline
15 May	0220	0235	4	
18 May	1400	1411	13	0.022
	2024	2031	5	
23 May	1540	1553	4-	
24 May	--	< 0728	> 44	0.085 Onset and maximum not observed
	--	< 1814	> 7	Onset and maximum not observed
27 May	0129	0143	6	
28 May	0144	0248	4	Slow rise, complex structure
	--	< 1550	> 6	Onset and maximum not observed
29 May	0853	0940	4	
	1018	1043	13	0.024
30 May	0149	0219	8	
	< 0650	0711	4	
31 May	0537	0613	4-	

Notes:

(1) Coverage this month was 34%.

(2) Quiet sun (background) flux F(2-12 A°) rose from a value of 4×10^{-4} erg $(cm^2\ sec)^{-1}$ early in the month to a maximum of 28×10^{-4} erg $(cm^2\ sec)^{-1}$ on the 14th, then declined to 18×10^{-4} erg $(cm^2\ sec)^{-1}$ at the end of the month.

SOLAR X - RAY FLARES (2 - 12A°)
SATELLITE EXPLORER 35

JUNE 1972

University of Iowa

Date 1972	Onset U.T.	Maximum U.T.	Peak-Ratio to Quiet Sun	Remarks and Values of Maximum Flux F (2-12 A°) in erg $(cm^2\ sec)^{-1}$
2 June	2025	2038	10	
5 June	0150	0203	6	
	1259	1304	7	
	1311	1318	7	
6 June	1505	1511	19	0.031
12 June	--	< 1348	> 14	> 0.037 Onset and maximum not observed
13 June	0120	0142	4	
15 June	< 0957	1006	5	Onset not observed
	--	1316	13	0.025 Onset not observed
16 June	1958	2010	5	
21 June	1027	1038	6	
23 June	1723	1732	32	0.043
24 June	0700	0708	45	0.064 Rapid rise
	1913	1922	18	0.024
25 June	0007	0017	7	
	0759	0811	5	
29 June	0722	0738	4	

Notes:

(1) Coverage this month 48%.

(2) Quiet sun (background) flux F(2-12 A°) varied from 11 to 30×10^{-4} erg $(cm^2\ sec)^{-1}$ during the month.

Publication Notice

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Report UAG-21, "Preliminary Compilation of Data for Retrospective World Interval July 26 - August 14, 1972" compiled by J. Virginia Lincoln and Hope I. Leighton, World Data Center A for Solar-Terrestrial Physics, November 1972, single copy price 70 cents.

Report UAG-22, "Auroral Electrojet Magnetic Activity Indices (AE) for 1970" by Joe Haskell Allen, National Geophysical and Solar-Terrestrial Data Center, Environmental Data Service, November 1972, single copy price 75 cents.

Report UAG-23, "U.R.S.I. Handbook of Ionogram Interpretation and Reduction", Second Edition, November 1972, edited by W. R. Piggott, Radio and Space Research Station, Slough U.K., and K. Rawer, Arbeitsgruppe für Physikalische Weltraumforschung, Freiburg, G.F.R., November 1972, single copy price $1.75.

Report UAG-24, "Data on Solar-Geophysical Activity Associated with the Major Ground Level Cosmic Ray Events of 24 January and 1 September 1971", Parts 1 and 2, compiled by Helen E. Coffey and J. Virginia Lincoln, World Data Center A for Solar-Terrestrial Physics, December 1972, single copy price (includes Parts 1 and 2) $2.00.

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